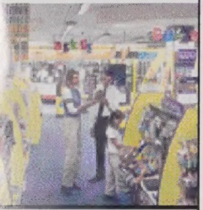
$2.50

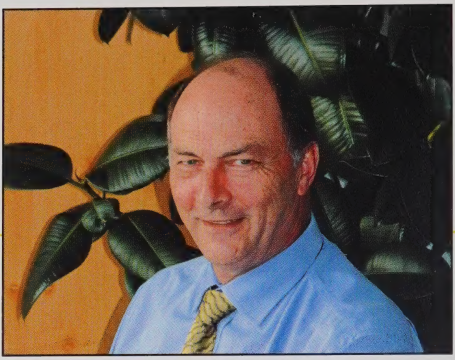
www.dse.co.nz

# CATALOGUE
# 2002-2003

**DICK SMITH**
**ELECTRONICS**

DICK SMITH
ELECTRONICS





*Dear Customer,*

*It gives me special pleasure to introduce the 2002/3 Dick Smith Electronics Catalogue.*

*Dick Smith Electronics is a leading company in a fast-changing field. We're looking forward this year to the ongoing development of the company, it's product range and it's large and professional team.*

*Over the thirty years of producing the catalogue, our success in providing you with the products you want and the quality you deserve at the best possible price is reflected in store growth. Six new Dick Smith Electronics stores have been opened in the last twelve months. It's your continued support, feed-back and loyalty that propels our growth. We'll endeavour to recognise your goodwill with continued high service levels backed by our in-depth product knowledge and of course, great deals and genuine specials.*

*Enjoy your new catalogue. You'll find leading-edge technology and industry innovations as we strive to maintain our place as a leader in the introduction of new technologies. Our reference and technical pages have been updated by our highly qualified in-house technical team and will continue to be a valuable resource for customers at all levels of expertise.*

*Thank you again for your support, feed-back and loyalty. We'll strive to exceed your expectations to ensure your Dick Smith Electronics shopping experience is both good fun and good value.*

*Best wishes*

Rob Foreman

*Rob Foreman*
*General Manager*
*New Zealand*

DICK SMITH
ELECTRONICS
*That's where you go!*

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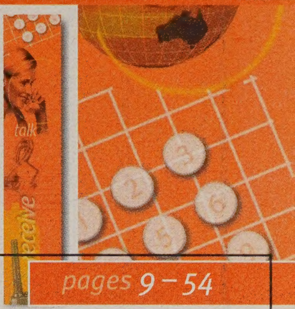

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## what's IN store

Our latest catalogue is a detailed representation of our immense product range. We have broken down this range into colour coded sections to provide ease of use. While you can browse by product category there is also a detailed index at the back. Alternatively you can search for individual items on the CD-ROM which is available separately.

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*This catalogue is produced to cover the period from May 2002 to May 2003. Prices include GST.*
*All prices are valid until 31 July 2002. After this date, factors outside our control may result in price increases.*

## North Island stores

**WHANGAREI**
14 John Street
Ph 09 438 0687 Fax 09 438 9635

**AUCKLAND**
**Albany** Mega Centre, Don McKinnon Drive,
Ph 09 415 7410 Fax 09 415 4360
**Glenfield** Glenfield Road
(above Westfield Shopping Town)
Ph 09 442 2314 Fax 09 442 2317
**Takapuna** 451 Lake Road
Ph 09 486 4037 Fax 09 486 4039
**City** 26-28 Wyndham St
Ph 09 303 1355 Fax 09 303 2783
**Henderson** West City Mall
Ph 09 838 8024 Fax 09 838 9258
**Karangahape Road** 442 Karangahape Road
Ph 09 309 4402 Fax 09 373 4456
**Newmarket** 50 Remuera Road
Ph 09 524 7033 Fax 09 524 7033
**Onehunga** 252-258 Onehunga Mall
Ph 09 634 6767 Fax 09 634 9080
**Pakuranga** Westfield Shopping Town
Ph 09 576 6604 Fax 09 576 4446
**Manukau City**
Cnr Ronwood Ave & Great South Rd
Ph 09 262 4150 Fax 09 262 4151
**Papakura** 130 Great South Rd
Ph 09 298 0943 Fax 09 296 1713
**St Lukes** Cnr Wagener Place
& St Lukes Rd Mt Albert, Ph 09 845 0102
**New Lynn** 3045 Great North Road,
Ph 09 827 0433 Fax 09 827 0466
**Botany Downs** Shop B01, Botany Town Centre,
Ph 09 271 4100 Fax 09 271 4101

**HAMILTON**
**Barton Street** 299 Barton Street
Ph 07 839 4491 Fax 07 838 1226
**Ward Street** 131-135 Ward Street
Ph 07 838 1484 Fax 07 834 1138

**TAURANGA**
Cnr Willow & Spring Streets
Ph 07 578 7071 Fax 07 577 6674

**ROTORUA**
1175 Pukuatua Street
Ph 07 349 0270 Fax 07 348 2464

**NAPIER**
233 Emerson Street
Ph 06 835 5137 Fax 06 834 0463

**NEW PLYMOUTH**
70-72 Devon Street East
Ph 06 758 3309 Fax 06 758 5034

**WANGANUI**
122B Victoria Ave
Ph 06 348 7270 Fax 06 348 7275

**PALMERSTON NORTH**
Cnr Fitzherbert Ave & Ferguson St
Ph 06 359 4447 Fax 06 359 4452

**WELLINGTON**
**Featherston Street** 171 Featherston Street
Ph 04 473 9858 Fax 04 473 0407
**Vivian St** 57 Vivian Street
Ph 04 384 8198 Fax 04 801 6258
**Manners Mall** 4 Manners Mall
Ph 04 385 6788 Fax 04 385 6785
**Lower Hutt** 90 Queens Drive
Ph 04 566 2022 Fax 04 566 1277
**Porirua City** Porirua Mega Centre
Ph 04 237 6654 Fax 04 237 6456

## North Island authorised stockists

**KERIKERI**
**Kerikeri Electronics**
63 Main Street, Kerikeri.
Phone 09 407 5589 Fax 09 407 5587

**OREWA**
**Tronix Ltd**
Westpac Plaza,
Bakehouse Lane, Orewa.
Phone 09 426 2007 Fax 09 427 8085

**THAMES**
**Piaggi Systems & Software Ltd**
25 Goldfields Mall,
Mary Street, Thames.
Phone 07 867 9215 Fax 07 867 9226

**TE PUKE**
**Baytown Computers**
63 Jellicoe Street
Phone 07 573 7544 Fax 07 573 9490

**WHAKATANE**
**Boonen Electronics**
106 The Strand, Whakatane.
Phone 07 308 8761 Fax 07 308 9151

**TAUPO**
**TalkTime 2000 Ltd**
Cnr Tamamutu &
Gascoigne Sts, Taupo.
Phone 07 377 0668 Fax 07 377 0669

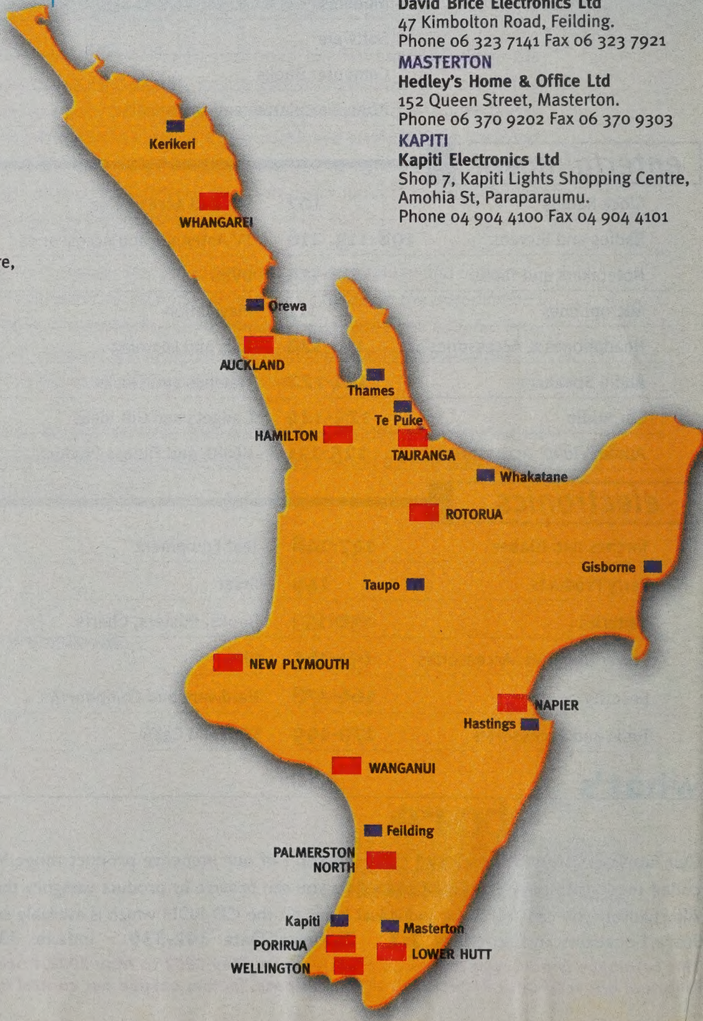
**GISBORNE**
**AMPS Electronics**
131 Gladstone Road, Gisborne.
Phone 06 868 1366 Fax 06 867 9103

**HASTINGS**
**Baytech Services Ltd**
114 North King Street, Hastings.
Phone 06 878 8962 Fax 06 878 5509

**FEILDING**
**David Brice Electronics Ltd**
47 Kimbolton Road, Feilding.
Phone 06 323 7141 Fax 06 323 7921

**MASTERTON**
**Hedley's Home & Office Ltd**
152 Queen Street, Masterton.
Phone 06 370 9202 Fax 06 370 9303

**KAPITI**
**Kapiti Electronics Ltd**
Shop 7, Kapiti Lights Shopping Centre,
Amohia St, Paraparaumu.
Phone 04 904 4100 Fax 04 904 4101



## South Island stores

**NELSON**
150 Hardy Street
Ph 03 548 9161 Fax 03 548 2900

**CHRISTCHURCH**
**Manchester Street**
130 Manchester Street
Ph 03 365 5560 Fax 03 365 5561
**Colombo Street**
Cnr Colombo & St Asaph Sts
Ph 03 366 2703 Fax 03 379 4684
**Papanui**
Cnr Main North Rd & Langdons Road
Ph 03 352 8770 Fax 03 352 7608
**Riccarton**
Shop 20 Smith City Centre Rotherham Street
Ph 03 343 0812 Fax 03 343 3880

**TIMARU**
295 Stafford Street
Ph 03 684 6876 Fax 03 684 6878

**DUNEDIN**
342 Moray Place
Ph 03 474 1096 Fax 03 474 1032

**INVERCARGILL**
63 Leven Street
Ph 03 214 4363 Fax 03 214 0672

## *interested in a business relationship?*

## *become a Dick Smith Electronics Agency.*

Do you already have a business but would like to see it expand its profit making potential? Or perhaps you've been thinking about changing your lifestyle. Outstanding business opportunities now exist to become a Dick Smith Electronics agent. You can become part of New Zealand's most successful electronics retailer trading in country towns throughout New Zealand.

You'll get all the advantages of. . .

- The reputation and identity of New Zealand's best known electronics retailer
- Exclusive products and the pricing advantages only possible from a national retail group

For further information please call
Head Office Phone Auckland 09 414 2800
Freefax 0800 800 290
or write to Dick Smith Electronics Wholesale,
Private Bag 102 903,
North Shore Mail Centre,
Auckland, New Zealand.

## South Island authorised stockists

**BLENHEIM**
**Quantum Electronics**
5 Maxwell Road, Blenheim
Phone 03 578 1132 Fax 03 577 8981

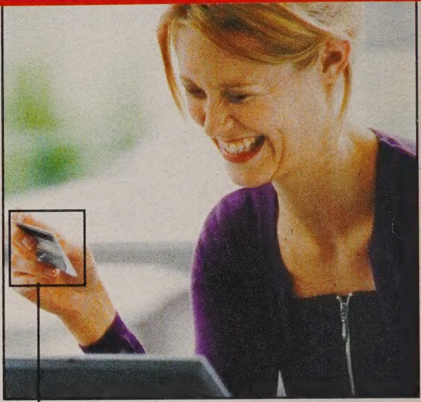
**ALEXANDRA**
**Central Betta Electrical**
15 Tarbert Street, Alexandra.
Phone 03 448 7317 Fax 03 448 7317

NELSON
Blenheim
CHRISTCHURCH
TIMARU
Alexandra
DUNEDIN
INVERCARGILL

## ON LINE CONVENIENCE 24/7

# Dick Smith Electronics

## – as easy as d.s.e.

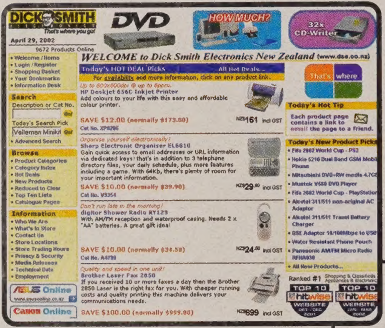


## www.dse.co.nz *actually!*

**Shopping on-line is easy** – simply visit our website and browse **over 9,500 products**, including the latest product releases, up-to-date pricing and stock availability. You can also browse off-line by using the **catalogue CD-ROM**, which is available **FREE** in-store. Once you locate the product of your choice, you can click directly through to the corresponding product on our website. If you are not already connected to the Internet, you can do so instantly by following Xtra's link on the catalogue CD-ROM.

## *credit card* SAFE

We use technology called Secure Sockets Layer (SSL), which encrypts (or scrambles) your details thereby keeping them private from other computers.


DICK SMITH ELECTRONICS
That's where you go!
DVD
HOW MUCH?
32x CD-Writer
That's where
• Welcome / Home
• Login / Register
• Shopping Basket
• Your Bookmarks
• Information Desk
Search
Description or Cat No.
Go!
Today's Search Pick
Velleman Minikit
Go!
• Advanced Search
Browse
• Product Categories
• Category Index
• Hot Deals
• New Products
• Reduced to Clear
• Top Ten Lists
• Catalogue Pages
Information
• Who We Are
• What's In Store
• Contact Us
• Store Locations
• Store Trading Hours
• Privacy & Security
• Media Releases
• Technical Data
• Employment
ASUS Online
www.asusonline.co.nz
Canon Online
All Hot Deals...
TOP 10 hitwise WEBSITE OCT - DEC 2001
TOP 10 hitwise WEBSITE JAN - MAR 2002

April 29, 2002

9672 Products Online

WELCOME to Dick Smith Electronics New Zealand (www.dse.co.nz)

Today's HOT DEAL Picks

For availability and more information, click on any product link.

*Up to 600x600dpi @ up to 6ppm.*
HP Deskjet 656C Inkjet Printer
Add colours to your life with this easy and affordable colour printer.
SAVE $12.00 (normally $173.00) NZ$161 incl GST
Cat No. XP8296

*Organise yourself electronically!*
Sharp Electronic Organiser EL6810
Gain quick access to email addresses or URL information via dedicated keys! that's in addition to 3 telephone directory files, your daily schedule, plus more features including a game. With 64Kb, there's plenty of room for your important information.
SAVE $10.00 (normally $39.90) NZ$29.90 incl GST
Cat No. V3354

*Don't run late in the morning!*
digitor Shower Radio RY123
With AM/FM reception and waterproof casing. Needs 2 x "AA" batteries. A great gift idea!
SAVE $10.00 (normally $34.50) NZ$24.50 incl GST
Cat No. A4799

*Quality and speed in one unit!*
Brother Laser Fax 2850
If you received 10 or more faxes a day then the Brother 2850 Laser is the right fax for you. With cheaper running costs and quality printing this machine delivers your communications needs.
SAVE $100.00 (normally $999.00) NZ$899 incl GST

Today's Hot Tip
Each product page contains a link to email the page to a friend.

Today's New Product Picks
- Fifa 2002 World Cup - PS2
- Nokia 5210 Dual Band GSM Mobile Phone
- Mitsubishi DVD+RW media 4.7GB
- Mustek V560 DVD Player
- Fifa 2002 World Cup - PlayStation
- Alcatel 311/511 non-original AC Adaptor
- Alcatel 311/511 Travel Battery Charger
- DSE Adaptor 10/100Mbps to USB
- Water Resistant Phone Pouch
- Panasonic AM/FM Micro Radio RFHA030
- All New Products...

Ranked #1 Shopping & Classifieds Appliances & Electronics

As at 29/4/02

Canon
Canon
BCI-21 Color

## *connect* NOW!

over 9,500 products

HOT DEALS

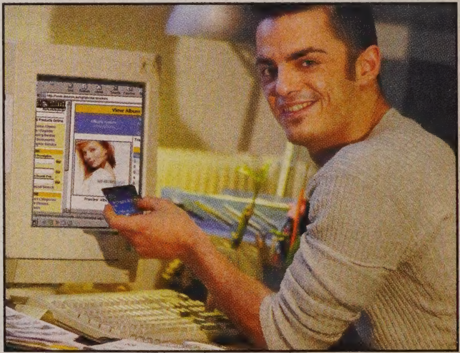
REDUCED TO CLEAR

TOP 10 PLAYSTATION GAMES

TOP 10 PC GAMES

TOP 10 DVD TITLES

INFORMATION



## *easy* DELIVERY

usually within 24-48 hours of receipt of your order

Have you visited a Dick Smith Electronics store lately?
*You can do it without leaving home!*

# Home Shopping

## your order is processed IMMEDIATELY

Once you've given us your payment details, our computerised order fulfilment service does the rest. Just use the payment method most convenient for you.

We accept:

- All major credit cards: Bankcard, MasterCard, Visa, American Express, Diners Club and Drivecard.
- Overseas Credit Cards are accepted up to $200. For large orders, a bank draft is required.
- Cheques in $NZ.
- Money orders in $NZ.
- Bank Drafts in $NZ.

## we'll freight IT TO YOU

### Courier

Delivery anywhere in New Zealand within a few days.

### Air Freight

Fast and efficient! We'll even air-freight your goods overseas.

### Please Note

Any of the following goods are considered dangerous and cannot be sent by air-freight or New Zealand Post:

- All caustic solutions (i.e. ferric chloride, photo etches, etc)
- Aerosol pressure packs (i.e. anything flammable, gas refills, cleaning sprays, etc)
- Pressurised goods ("screech" alarms, butane-powered soldering irons, etc)

When ordering, please specify road freight for these items. Extra costs may apply.

### FREIGHT CHARGES

**NEW ZEALAND ONLY**

All deliveries are by courier and must be signed for.

| | |
|---|---|
| North Island deliveries per parcel up to 5kg | $5.00 |
| North Island Dangerous Goods Minimum | $14.00 |
| South Island deliveries per parcel up to 5kg | $10.00 |
| South Island Dangerous Goods Minimum | $20.00 |

**INTERNATIONAL**

All prices are in $NZ for International Economy with Track and Trace. International Courier can be arranged at extra cost.

| Weight | Australia | South Pacific | Asia/America | Europe |
|---|---|---|---|---|
| Up to 0.5kg | $8.00 | $12.00 | $15.00 | $18.00 |
| Up to 1.0kg | $12.00 | $15.00 | $25.00 | $27.00 |
| Up to 2.0kg | $20.00 | $33.00 | $44.00 | $49.00 |
| Up to 5.0kg | $39.00 | $62.00 | $85.00 | $95.00 |

These rates are correct as at April 2002 but are subject to change. All customers will be advised prior to shipping if there is any additional cost.

Please Note: There may be some items that we are not able to ship overseas. Customers will be advised if their order contains any of these items.

## satisfaction GUARANTEED

When you order through Dick Smith Electronics Phone, Fax, Website & Mail Orders, you can rest assured that you're being looked after by a team of professionals.

The following policies ensure your satisfaction:

### 14-Day Money-Back Guarantee!

If you're not completely satisfied with your purchase, return it in its original packaging and condition within 14 days, and we will refund your money – less transportation costs (unless goods are faulty). *Faulty goods may be able to be returned after the end of the 14 day period. Check with your Dick Smith Electronics store or call us as above.*

### Automatic Back Orders

Out-of-stock lines are automatically placed on back order for later delivery. Or, if you prefer, we'll refund pre-paid orders.

**Please note: "Change of Mind" refunds do not apply to Books, Batteries, Semi Conductors, Video Games, Computer Software, or DVDs.**

## contact US

### website

**www.dse.co.nz**

### orders and enquiries

**0800 373 347 (business hours)**

**Outside New Zealand +64 9 414 2845**

### facsimile

**0800 800 290**

**International +64 9 414 2866**

### email

**weborders@dse.co.nz**

### mail

**DSE (NZ) Ltd, Freepost 2170, Private Bag 102903,**
**North Shore Mail Centre, Auckland.**
**No postage stamp required**

# ORDER FORM

*internet/email/phone/fax/post orders*

DICK SMITH ELECTRONICS
*That's where you go!*

## Home Shopping Service

# Order form

NAME: ______________________

DELIVERY ADDRESS: (NO BOX NUMBERS) ______________________

POST CODE: ______________________

FAX: ____________ PHONE: ____________

EMAIL ______________________

HAVE YOU ORDERED FROM US BEFORE? ☐ YES ☐ NO

PREVIOUS ADDRESS IF CHANGED SINCE LAST ORDER: ______________________

| CODE | PRODUCT DESCRIPTION | QTY | $ PRICE | TOTAL |
|---|---|---|---|---|
| | | | | |
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| | |
|---|---|
| **TOTAL** | |
| **P&H FREIGHT** | |
| **TOTAL** | |

## METHOD OF PAYMENT:

PLease complete all sections clearly.

Enclosed is my cheque/money order for the following amount $ ____________ **OR** please charge my Credit Card No. ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

EXPIRY DATE: ____________

SIGNATURE: ______________________

*ordering information*

**See page 5 for details**

**14 DAY MONEY BACK GUARANTEE**
If NOT completely satisfied. Refer to page 5 for details.

# DIRECT SALES FOR BUSINESS

## *the Direct Sales Division can offer:*

☐ **Wholesale pricing to all our business customers**

☐ **Further discounts for buying in bulk**

## are *you*

*one of the following?*

**educational**

**business**

**government**

If you're a Government department, Reseller or commercial entity then one call to Dick Smith Electronics could solve your business requirements. We are able to offer excellent wholesale rates on your regular purchases and can also offer substantial discounts on bulk orders. Please call our experienced team for a quote – ring Dick Smith Electronics Wholesale now on 09 414 2800 or 0800 373373.

Dick Smith Electronics is also committed to supporting our Educational Institutions and we do so by offering full wholesale discounts to all who qualify. Please contact our team if you would like a regular copy of our School 'Bulletin'.

## HUGE *product range*

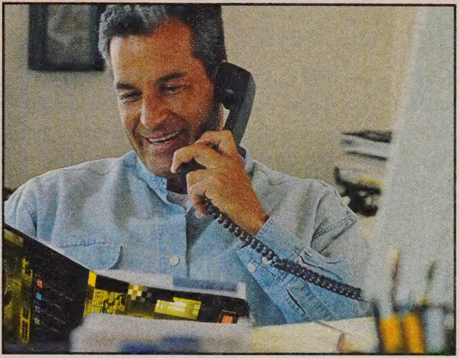
Direct Sales Division offers all products that are available in regular Dick Smith Electronics stores.

## Trade ID Card

DICK SMITH ELECTRONICS
TRADE
CASH CARD
T 6703

The Dick Smith Electronics Trade ID Card enables our Trade Cash Customers to purchase goods at any store nationwide at Trade prices. This card will also entitle you to regular mailouts and Trade Specials.

If you are:
A. A Reseller of Product
B. A Manufacturer
C. A Service Compnay
D. A Registered Technician
E. Have a relevant Tradesman's Certificate
– you may apply at your local Dick Smith Electronics store, or send your request to: Dick Smith Electronics Wholesale, Private Bag 102903, North Shore Mail Centre, Auckland, or download from the Wholesale page on-line.



## Wholesale pricing

*Did you know that you can view wholesale prices on-line, order on-line and charge to your DSE account?*
Our on-line shopping service has now been expanded to include our Business customers. Once you have accessed our website www.dse.co.nz you are able to view the entire Dick Smith Electronics range on-line. When you have registered with us you can check out your best price point, stock availability and you can order on-line. You will be able to pay by credit card if you wish or charge your Dick Smith Electronics account.

## *Orders*
## *and enquiries*

You can obtain your pricing information whichever way suits you –

☎ **Phone us on 0800 373 373 (business hours)**

**On-line: www.dse.co.nz**

**Fax us on: 0800 800 290**

**Email: wholesale@dse.co.nz**

**Via our bulletin board – phone: 09 414 2889**

**For freight information and charges see page 5**

### International business customers

You can also take advantage of our service, we have an efficient and easy to use service which offers worldwide access on a vast range of products, and speedy delivery. We accept all major credit cards for small purchases, a bank draft or LC is required for orders over $NZ200.

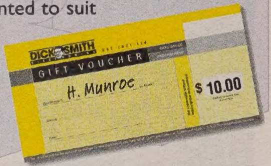
For further information contact our Wholesale Team
- International Fax +64 9 414 2886
- Phone +64 9 414 2877 • E-mail wholesale@dse.co.nz

**For important consumer information regarding prices and stock availability, please refer to the inside back cover of this catalogue.**

## . . . stuck for gift ideas?

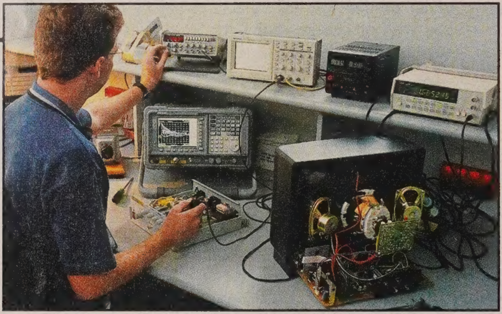
### Gift Vouchers

If there are simply too many great gift ideas in this catalogue for you to choose from, purchase a Gift Voucher instead. Gift Vouchers are redeemable at any Dick Smith Electronics store or stockist in New Zealand and can be printed to suit the dollar value of your choice.



## . . . it's a QUALITY thing

We have to put our good name behind the products we sell to you. We're proud of our heritage and reputation. It's taken years to build and we don't want to jeopardise it. That's why all our brands are tested beyond standard useage limitations. Our engineers are nice people but when it comes to putting our name on the line, they're brutal!



## . . . warranty & repairs

All products sold by Dick Smith Electronics are covered by a minimum 90 day warranty period, with many products having a 1, 2 or 5 years warranty. Please ask our store staff for specific warranty periods. Should you experience a problem, we have a dedicated Technical Support Team of 12 technicians to answer your questions. Dick Smith Electronics are authorised warranty repair agents for IBM, Epson, Sony, Panasonic, Sanyo and Sharp brands, as well as supplying support for our own brands such as Digitor, Shimasu and DSE.

## . . . extended warranties

Fixing expensive equipment after the warranty period has expired is a concern for everybody. But help is at hand. Dick Smith Electronics offer "extended" warranty plans on a wide range of products that we sell. Just ask in store when you purchase your product.

# payment options

## . . . cash, credit and more

We're happy to accept all major credit and eftpos cards, or cash but there are lay-by and finance options too. Obviously the usual terms and conditions apply. Ask our staff if you're considering one of these options.

MasterCard
AMERICAN EXPRESS
VISA
FARMACARD
Diners Club International
LAY-BY AVAILABLE
eftpos

## . . . Yes! We can help with finance!

Easy monthly repayments are available to approved purchasers on any product we sell over $295 with the exception of scanning receivers, computer hardware upgrades and software sold separately. Software sold with a computer will be financed if its content does not exceed 50% of the total cash price. Usual deposit is 20% of the total cash price, but lower or even no deposit finance may be available as long as credit and other criteria are met. Repayments can be spread from 6 months up to a maximum 3 year term. All agreements attract a $45 booking fee. Normal credit criteria and special conditions apply. We also accept Diners Club, American Express, Mastercard, Farmacard, and Visa. Home/Office delivery available. Some Authorised Stockists may not be able to offer this finance option.

## . . . join our V.I.P. Computer Online Club!

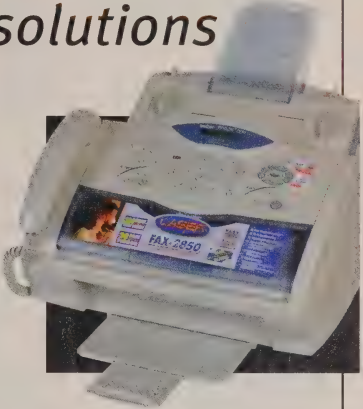
VIP COMPUTER CLUB
WELCOME
DICK SMITH ELECTRONICS
Communication
Participation
Exploration
Information
directlink

*All you need is a computer with a modem.* Just pick up a registration form in store. Membership is free if you've purchased $100 or more of computer products in the 7 days prior – or you can pay a $20 membership fee. You will receive special discounts and online newsletters, exclusive to VIP Computer e-club members.

home
or
business

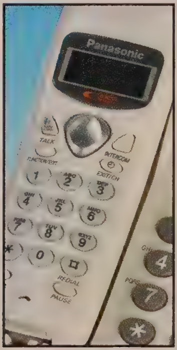
newest
technology

a range
of
solutions

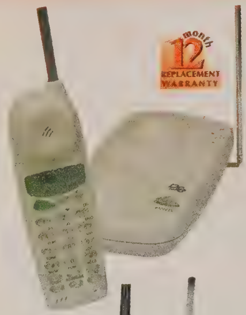


# New Zealand's number 1

We've always strived to be New Zealand's Number One Phone Store so it stands to reason that our range of telephone and communication products is one of the, if not ***the***, biggest. Our range extends from the new telephone technologies like DECT and Digital, through to leading edge cordless and mobile phones, faxes, answering machines and even hand held PRS Communicators. Plus we've got all the cables, plugs, antennas and accessories needed to keep you in touch with your world.



# Cordless Phones



**DSE**

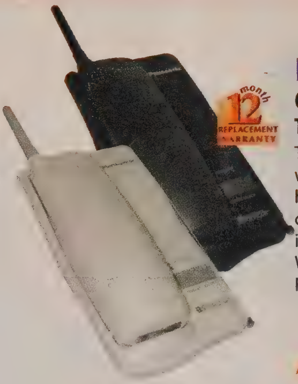
## Cordless Phone KT-657

An ideal phone for the home or small office. Desk- or wall-mountable, with 10 channels, 10 memories, multi-handset capability (up to four handsets), and 14-day stand-by time.

F 9971 **$98.80**

**Additional Handset**

F 9972 **$97.70**



**Panasonic**

## Cordless Phone TC1200NZB

The small footprint won't waste space or clutter your home, and the new comfortable handset design is a joy to use. Available in White and Black.

F 9049/F 9064 **$109ea**

**Uniden**

## Cordless Phone XS610

This advance 25 channel cordless phone comes with a backlit keypad, auto talk, 10 number memory, page/find, flash/recall and handset ringer/earpiece volume controls. Available in Black and White.

F 9047/
F 7297 **$119ea**

**DSE**

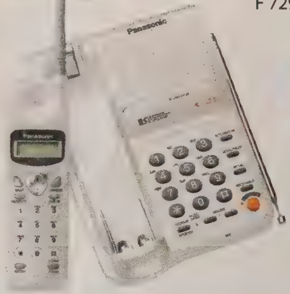
## Cordless Speakerphone

This hands-free speakerphone is desk or wall mountable, and features 10 channels, 10 memories, dual keypads, multi-handset capability (up to nine handsets), a two-way intercom, 14 day stand-by time, last number redial, and a backlit talk button.

F9973 **$148**

**Additional Handset**

F 9972 **$97.70**



**Panasonic**

## Cordless Phone TC1220NZW

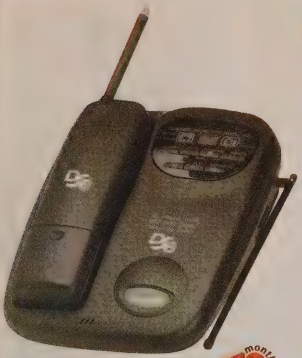
This digital speakerphone has many advanced features such as a multi-function backlit LCD display, caller id compatible, dual keypads & wall mountable.

F 9066 **$179.90**

## SPECIFICATIONS

### Cordless Phones

| Additional Features | DSE KT-657 F9971 | Uniden XS610 F9047/F7297/F9048 | Panasonic TC1200 F9049/F9064 | DSE KT-651 F9973 | Panasonic TC1220 F9066 |
|---|---|---|---|---|---|
| Caller ID Display | - | • | - | - | Yes |
| Call Waiting Compatible | • | Yes | Yes | • | Yes |
| Battery Capacity | 320mAH (3.6V) | 270mAH (3.6V) | 300mAH (3.6V) | 270mAH (3.6V) | 300mAH (3.6V) |
| Channel Change | Manual | Manual | Manual | Manual | Manual |
| Charge Indicator | Yes | Yes | Yes | Yes | Yes |
| Earpiece Volume Control | - | Yes | Yes | - | Yes |
| Handset Ringer Tone | - | Yes | Yes | - | Yes |
| Handset Ringer Volume Control | • | Yes | Yes | • | Yes |
| Hearing Aid Compatible | • | Yes | Yes | • | Yes |
| Paging to Base | 2 Way | 1 Way | 1 Way | 2 Way | 2 Way |
| Range Maximum (Typical) | 200m | 250m | 100m | 200m | 100m |
| Standby Time (Battery Save Off) | 14 day | 2 weeks | 14 days | 14 days | 20 days |
| Talk/Battery Low Indicators | Yes | Yes | Yes | Yes | Yes |
| Talk Time | 5 hours | 6 hours | 5 hours | 5 hours | 8 hours |
| Warranty | 1 year | 3 years | 1 year | 1 year | 1 year |



### Cordless Telephone with Answer Machine KT674

This fantastic phone comes with many features, including 10 channels, 10 memories, and digital answering machine with voice time/day stamp and 20 minutes recording time. It is also multi-handset capable (up to four handsets).

F 9974 **$229**

**Extra Handset** F 9982 **$149**

### Uniden Cordless Phone with Answering Machine XSA650

25 advance channels, speaker phone with digital answering machine, time and day stamp, handset ringer/earpiece volume controls, 10 step speaker volume control, selectable outgoing message, slim design handset. Colour: Ivory.

F 7298 **$249.95**

new for 2002

### Panasonic Cordless Phone TC1230NZW

This phone comes with an all-digital answering system & digital speakerphone. Caller id compatible, dual backlit keypads, wall mountable, plus much more!

F 9067 **$249.90**

### Uniden Cordless Phone wtih Answering Machine XSA660 and Second Handset

25 channels to ensure interference free operation and backlit keypad for your convenience. Including many other fantastic features, this phone makes the ideal addition for any home or office. (Silver only)

F 9125 **$299**

## SPECIFICATIONS

### Cordless Phones Digital Answer Machine

| Additional Features | DSE KT-674<br>F 9974 | Uniden XSA650<br>F7298 | Panasonic TC1230<br>F9067 | Uniden XSA660<br>F9125 |
|---|---|---|---|---|
| Answer Phone | Yes | Yes | Yes | Yes |
| Caller ID Display | – | – | Yes | – |
| Call Waiting Compatible | – | Yes | Yes | Yes |
| Battery Capacity | 320mAH | 270mAH (3.6V) | 300mAH (3.6V) | 270mAH (3.6V) |
| Call Screening | Yes | Yes | – | Yes |
| Call Timer | – | – | Yes | – |
| Hearing Aid Compatible | – | Yes | Yes | Yes |
| Message Count | – | Yes | Yes | Yes |
| Paging to Base | 1 way | 1 way | 2 way | 1 way |
| Range Maximum (Typical) | 220m | 500m | 100m | 500m |
| Remote Access | Yes | Yes | Yes | Yes |
| Standby Time (Battery Save Off) | 14 day | 2 weeks | 20 days | 2 weeks |
| Talk Time | 5 hours | 6 hours | 8 hours | 6 hours |
| Warranty | 1 year | 3 years | 1 year | 3 years |

# 900MHz Cordless Phone

## BENEFITS OF MULTI-HANDSET

new for 2002

12 month REPLACEMENT WARRANTY

**Uniden**

### DS805 900MHz Extra Handset

Extra Handset to suit DS815, DS825, DS845 models.
F 7353
$179⁹⁵

- Additional handsets are ideal for large households or offices.
- Stay in touch with family members or staff by installing an extra handset, in each room of the building.
- No phone sockets are required, only mains power sockets.

new for 2002

12 month REPLACEMENT WARRANTY

### Uniden DS810 900MHz Cordless Phone

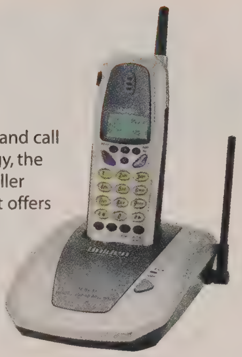
900 MHz performance ensures this unit offers outstanding quality and performance. Featuring a backlit keypad and 29 Enhanced memory dial locations, this unit offers outstanding quality and performance.
F 7351
$249

new for 2002

12 month REPLACEMENT WARRANTY

### Uniden DS815 900MHz Cordless Phone

Delivering exceptional voice clarity and call security due to it's digital technology, the DS815 is a sleek design featuring caller identification* and backlit keypad. It offers expandability and flexibility.
F 7352
$299⁹⁵



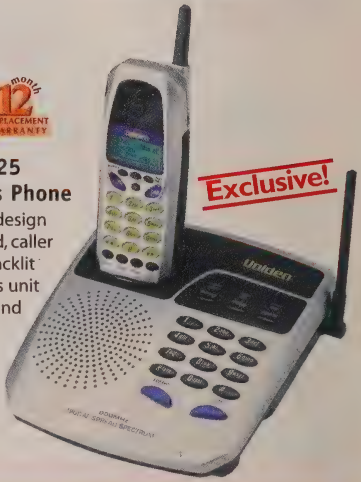
new for 2002

12 month REPLACEMENT WARRANTY

### Uniden DS825 900MHz Cordless Phone

The DS825 is a sleek design featuring dual keypad, caller identification* and backlit keypad. Therefore this unit offers expandability and flexibility.
F 9136
$349⁹⁵

Exclusive!



new for 2002

12 month REPLACEMENT WARRANTY

### Uniden DS845 900MHz Cordless Phone

Featuring a built in digital answering machine with dual keypad, caller identification* and backlit keypad, the DS845 offers expandability and flexibility.
F 9135
$399⁹⁵

Exclusive!

## CALLER DISPLAY

*Telecom's service will allow you to see the phone number of the incoming call before you answer it – Caller Display requires a phone or unit that is able to display these calls such as those shown above. (Not all incoming numbers will be displayed. Some pay phone, cellphones and international calls will come up as "private numbers" as well as numbers that the caller has selected to dial the "number withhold" code.) NB - Caller Display does not currently allow Alpha to be displayed with numbers.

## DECT

12 month REPLACEMENT WARRANTY

### Uniden DECT 1811 Cordless Phone

This phone is designed for reliability, long life, and outstanding performance utilising the latest 1.8 GHz Digital Enhanced Cordless Telecommunication Technology. 120 channels, Internal calling between handsets, 200 hour standby, and much, much more.
F 9104
$249

**Additional Handset**

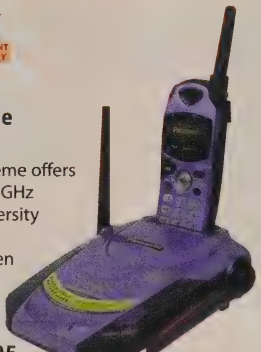
| | | |
|---|---|---|
| Uniden DECT 1812 | F 9116 | **$199.95** |

new for 2002

12 month REPLACEMENT WARRANTY

**Panasonic**

## 2.4GHz Cordless Phone KX-TG2503

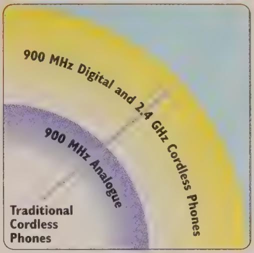


The 2.4GHz Gigarange Extreme offers full digital features with 2.4-GHz duplex frequency and a diversity antenna for a significantly improved range both in open spaces and indoors. 10-Station speed dial, handset locator, wall mountable. Blue only.

F 9897 **$299.95**

*Come visit our store and choose from our range of cordless phones.*

### Traditional Cordless Phones


900 MHz Digital and 2.4 GHz Cordless Phones
900 MHz Analogue
Traditional Cordless Phones

Analogue transmission phones operate in lower frequency band. While they are perfectly adequate for most homes, they can be susceptible to static interference and crossed lines, and have lower range (50-150m). These phones are the low cost alternative.

### 900MHz Analogue Cordless Phone

Used predominantly in the USA, it uses analogue transmission. They have marginally better reception and range than the traditional analogue cordless phone.

### 900MHz Digital Spread Spectrum Technology & 2.4GHz Cordless Phones

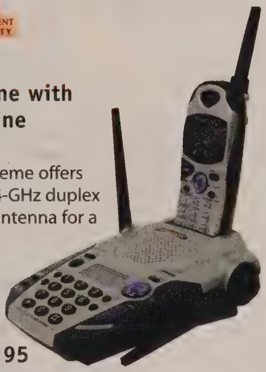
Digital transmission operates in higher frequency band. These phones offer the user superior range (up to 1km in ideal conditions), no static interference, enhanced voice clarity, clear reception and high security (no crossed lines, no eavesdroppers). These phones are perfect for properties, high-rise buildings, boats, at home or in the office.

new for 2002

12 month REPLACEMENT WARRANTY

**Panasonic**

## 2.4GHz Cordless Phone with Digital Answer Machine KXTG2583



The 2.4GHz Gigarange Extreme offers full digital features with 2.4-GHz duplex frequency and a diversity antenna for a significantly improved transmission range both in open spaces and indoors. Dual keypads, Digital answering system.

F 9898 **$449.95**

**Panasonic**

## 2.4GHz Cordless Speakerphone KXTG2650

12 month REPLACEMENT WARRANTY

Exclusive!

new for 2002

The Panasonic 2.4GHz Cordless speakerphone is packed with features, like long range & ultra clear sound, dual key pads, headset jack, belt clip, backlit display and more.

F 9073 **$499**

## SPECIFICATIONS

### 2.4GHz Cordless Phones

| Key Features | Panasonic KXTG2503 F9897 | Panasonic KXTG2583 F9898 | Panasonic KXTG2650 F9073 | Key Features | Panasonic KXTG2503 F9897 | Panasonic KXTG2583 F9898 | Panasonic KXTG2650 F9073 |
|---|---|---|---|---|---|---|---|
| Call Waiting Compatible | Yes | Yes | Yes | Memory Dialling | 10 | 50 | 50 |
| Intercom | – | Yes | Yes | Message Count | – | Yes | – |
| Number of Channels | 21 | 21 | 21 | Mounting Options - Desk/Wall | Yes - both | Yes - both | Yes - both |
| Auto Standby | Yes | Yes | Yes | Operating Frequencies | 2.4GHz | 2.4GHz | 2.4GHz |
| Auto Talk | Yes | Yes | Yes | Paging to Base | – | 2 Way | 2 Way |
| Base Ringer Control | – | Yes | Yes | Range Maximum (Typical) | 500 - 1000m | 500 - 1000m | 500 - 1000m |
| Battery Capacity | NiCD | NiCD | NiCD | Remote Access | – | Yes | – |
| Channel Change | Auto | Auto | Auto | Secure Voice Communication | Yes | Yes | Yes |
| Dual Keypad | – | Yes | Yes | Selective Message Deletion | – | Yes | – |
| Earpiece Volume Control | Yes | Yes | Yes | Standby Time (Battery Save Off) | 11 Days | 11 Days | 11 Days |
| Handset Ringer Tone | Yes | Yes | Yes | Talk Time | 4.5 Hours | 4.5 Hours | 4.5 Hours |
| Handset Ringer Volume Control | Yes | Yes | Yes | Shock & Splash Resistant | Yes | Yes | – |
| Hearing Aid Compatible | Yes | Yes | Yes | Time & Day Stamp | – | Yes | – |
| Hold | – | Yes | – | Toll Saver | – | Yes | – |
| Illuminated Keypad | Yes | Yes | Yes | Warranty | 1 Year | 1 Year | 1 Year |
| LCD Display | – | 3 Lines | 3 Lines | | | | |

## Corded Phones

12 month REPLACEMENT WARRANTY

**SHIMASU**

### 2 Piece Phone

Lift your decor with this stylish slim-line phone. Great price metallic silver finish. Wall mountable with back-lit keys and LCD display. 12 month replacement warranty.

F 9522 $\$46$

new for 2002

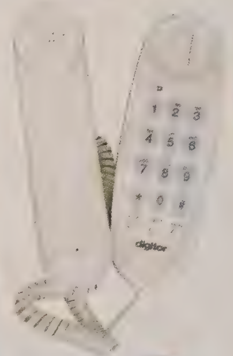
12 month REPLACEMENT WARRANTY

**DSE**

### Slimline Phone

Simple yet stylish, the DSE slimline phone has all the options you need, and it's wall mountable.

F 4525 $\$35$



new for 2002

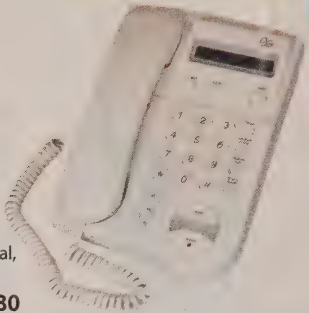
12 month REPLACEMENT WARRANTY

**digitor**

### Slim Design Phone

Mount the slim design phone on your desk or wall for convenience. Loaded with features, like last number redial, flash button, mute, and easy volume control.

F 4524 $\$46^{80}$



12 month REPLACEMENT WARRANTY

**DSE**

### Handsfree Speakerphone

Great value for money, this handsfree speakerphone has a call timer, 13 memories, mute button, redial, adjustable ringer and is call waiting and PABX compatible. 12 month replacement warranty.

F 9517 $\$79^{80}$

12 month REPLACEMENT WARRANTY

**SHIMASU**

### Decor Phone - Turquoise

Lift your decor with this attractive slim-line phone. Wall-mountable with backlit keys and LCD display. 12 month replacement warranty.

F 9983 $\$49^{80}$

new for 2002

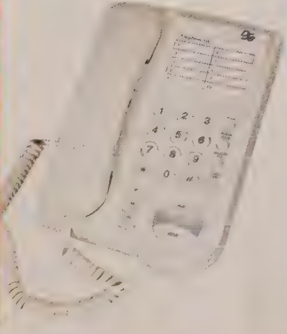
12 month REPLACEMENT WARRANTY

**digitor**

### Clock Radio Phone

Wake up to your favourite radio station in the morning with the practical Digitor Clock Radio/Phone. Sleep control, AM/FM radio, backlit LCD, and more.

F 3255 $\$89^{95}$



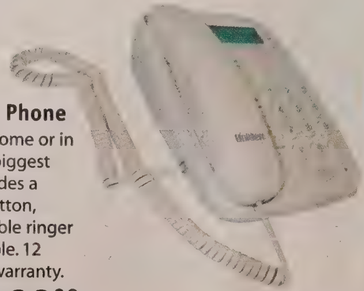
12 month REPLACEMENT WARRANTY

**DSE**

### 13 Memory Desk Phone

Perfect for the busy home or in the office, this is our biggest selling phone. It includes a visual ringer, mute button, redial button, adjustable ringer and is PABX compatible. 12 month replacement warranty.

F 9516 $\$62^{30}$



new for 2002

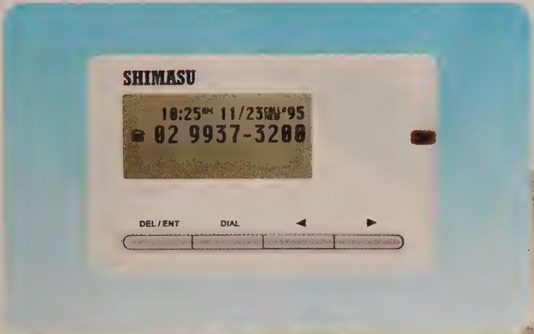
12 month REPLACEMENT WARRANTY

**Uniden**

### FP103 Corded Phone

This high quality phone comes with a number of advanced caller display features including name tagging, repeat indicator and call review.

F 9088 $\$99$



**SHIMASU**

### Caller Display Unit

3 line LCD display, stores 99 numbers including number, time and date of call. New call symbol and LED flash. Dial capability for easy callback.
F 9823

**$79.90**

DSE
PLAY
12 month REPLACEMENT WARRANTY

**DSE**

new for 2002

### Digital Answering Machine

Packed with features, the fully digital DSE answer machine provides all the solutions you need!
F 8013

**$99.80**

**Panasonic**

### Digital Answerphone KXTM100

12 hour time/day stamp. 15 minute digital recording. Remote access and 2 way record.
F 0715

**$108**

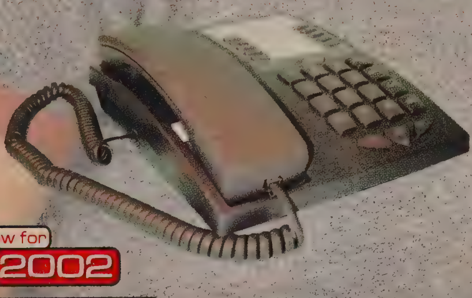
**Uniden**

### Digital Answer Machine 7000

Modern digital answering machine with 9 minutes recording time. Full remote access and room monitoring. Ideal for the not-so-busy person.
F 9019

**$108**

## BUSINESS PHONES



new for 2002

**ALCATEL**

### 2315 Corded Phone

This handsfree speakerphone comes with 11 one-touch memories, adjustable ringer volume, hold & pause functions, PABX compatible, plus lots more!
F 9090

**$139**

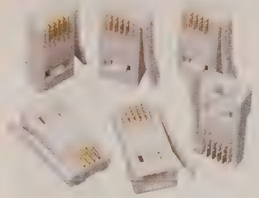
new for 2002

### Doro Congress 200 Corded Phone

This designer monitor desktop telephone has a range of features such as 20 one-touch memories, LCD display, PABX compatible, on hook dialling and 3 selectable ring melodies.
F 9089

**$139**

# Telephone Adaptors

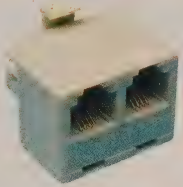


### BT / Telecom Plug

4 way line plug, fits standard phone cable.
F 9001 **$3.20 ea**

### Telephone Cord Coupler

A double line socket for joining two standard BT plugs
F 9774 **$7.80**



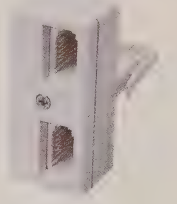
### Modular Double Adaptor

Allows connection of two devices to one modular socket.
F 2578 **$9.20**

A91/83H/0397

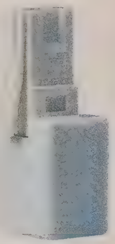
### 3 Way Modular Coupler

Ideal for answering machine, phone and fax modem.
F 2579 **$9.40**



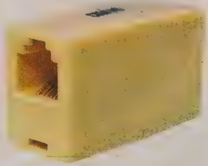
### Double Adaptor

Allows connection of 2 telephone devices to one socket.
F 9002 **$9.90**



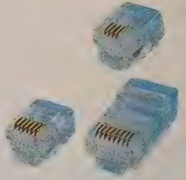
### US Socket - BT Plug

Connects a US RJ11 modular plug to a BT Telecom socket.
F 9123 **$9.90**



### Inline Coupler

A double line socket for joining two modular plugs.
F 2577 **$10.40**



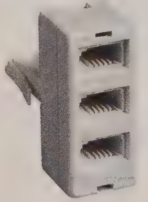
### Modular Plug Packs

Modular plugs in handy packs of 5. They require the use of a crimp tool.

| | | |
|---|---|---|
| 6-Pin/6 | F 2574 | **$10.80pk** |
| 6-Pin/4 | F 2576 | **$10.80pk** |
| 8-Pin/8 | F 2573 | **$10.80pk** |

### BT Socket – US Plug

For connecting a BT Telecom plug to a US modular socket.
F 9777 **$10.80**

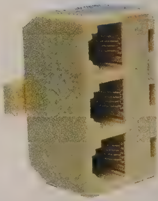


### 3 Way Outlet

Connects 3 telephone devices to one socket.
F 9011 **$13.60**

### BT Socket - US Modular (RJ 11)

Perfect for connecting telephone devices to fax machines. The handy short cord means this adaptor will fit where the others won't!
F 9062 **$13.80**



### 3 Way Modular Adaptor

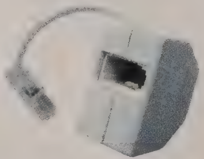
Allows connection of 3 devices to one socket.
F 2581 **$13.80**

### Telephone Privacy Adaptor

With 2 extension sockets and 'T' shaped plug nobody can listen in.
F 9772 **$17.60**

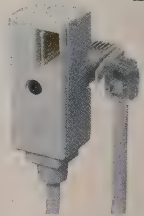
### Handset Cord Twist Stopper

Stops your phone cord knotting.
F 2465 **$9.80**



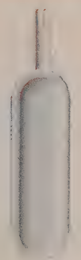
### BT to RJ45 Adaptor 150mm

Adapts NZ BT plug to fit RJ45 socket, with 150mm cable.
F 9113 **$19.80**

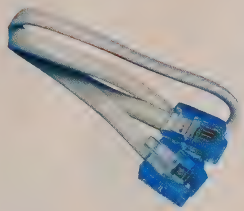


### Fax Break In Adaptor 1.5M

US plug to BT socket - used for connecting TAMS to faxes.
F 9013 **$19.80**



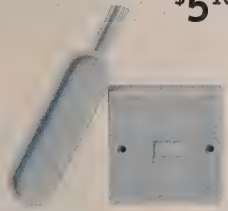
**Insert Tool**
For easily attaching wires to your phone extension sockets.
F 9024 **$5.10**



**Piggy Back Cable**
170mm cable fitted with modular plugs on each end.
F 2510 **$2.40**

**Mod Surface Mount Jack/6p4c**
RJ12 modular wall mount socket. Can be mounted on wall surface and accepts RJ12 modular telephone plugs.
F 2570 **$9.20**

**Cat 5E Crimping Kit**
Allows you to crimp modular plugs to Cat 5E cable.
Comes with:
1 x Cat 5 crimping tool
10 x Cat 5E modular plugs
10m Cat 5E cable
F 2858 **$59.80**



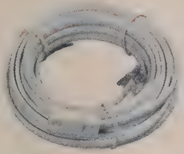
**2 Wire Jack Point**
Required for use in all new homes built since April 1997. Also any homes converted since that date.
F 9150 **$28.80**

**BT Phone Crimping Tool**
Attaches line plug to telephone cable.
F 9025 **$19.90**

**Phone Line Crimping Tool**
Cuts, strips and crimps modular style telephone line cords. Suits 4-pin and 6-pin modular plugs.
T 2591 **$19.90**

**Telepak Tee Joint Box**
Surface mount.
F 9782 **$26.90**

## EXTENSION LEADS



**Modular to BT Adaptor**
Adapts STP Telecom (BT) type plug to the modular system for connection of devices using the international modular system. 5m.
F 9102 **$17.60**

**Phone Extension Leads 1.5m**
BT-US Standard F 9006 **$10.30**
BT-US Reverse F 9015 **$10.60**

**Phone Extension Leads**

| | | |
|---|---|---|
| 3 metre | F 9007 | $15.70 |
| 5 metre | F 9008 | $16.90 |
| 10 metre | F 9009 | $22.60 |
| 15 metre | F 9010 | $24.40 |

**Modular Extension Lead - 5 Metre**
5 metre cord fitted with a modular plug on one end, and a modular socket on the other.
F 2809 **$19.10**

**Modular Phone Extension Leads**
1M RJ12 modular telephone linecord. Extend your telephone with this modular extension lead. Fitted on both ends with RJ12 modular telephone plugs.

| | | |
|---|---|---|
| 1 metre | F 5093 | $9.30 |
| 5 metre | F 5096 | $17.80 |
| 10 metre | F 5097 | $20.70 |
| 15 metre | F 5098 | $12.40 |

**Phone Extension Lead 3m**
BT plug to modular standard plug.
F 9413 **$13.60**
BT to Modular Reverse.
F 9041 **$14.60**

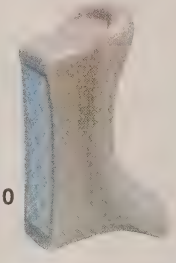
**DIY Extension Kit**
Everything you need to run your own telephone extension in one handy kit.
F 9121 **$33.90**

# Phone Accessories

### Anti Bacterial Wet Wipes

Disinfecting anti-bacterial wipes suitable for use on telephones, faxes and anywhere else where hygene is important.

N 1241 **$9.95**



### Phone Shoulder Rest

Save your neck and arms with this easy to stick on shoulder rest. Fits most phones.

F 2830 **$16.30**

### HPM Teleguard Surge Adaptor

Protects against surges on both the 240V side of an appliance and the phone side. Protect your equipment from damage, either through the mains or telephone line!

F 9946 **$39.80**

### Inductive Telephone Line Pick Up

Enables you to record conversations, when connected to the microphone jack of a tape recorder.

F 2705 **$10.20**

### Coiled Phone Handset Cables

**3 metre**

| | | |
|---|---|---|
| Beige | F 2461 | $16.70 |
| White | F 2455 | $16.70 |
| Ivory | F 2457 | $16.70 |
| Black | F 2458 | $12.70 |

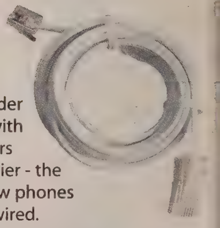
**8 metre**

| | | |
|---|---|---|
| Black | F 4981 | $16.60 each |
| Ivory | F 4980 | |
| Beige | F 2462 | |

### Cat 5E Modular Plugs 5pk

5 x Cat 5E (Enhanced) modular plugs. 8p8c.

F 2859 **$13.80**



### Rental Telephone Lead US-NZ

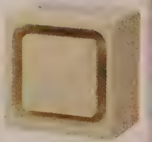
This lead will fit older Telecom models with telepermit numbers 202/94/009 or earlier - the majority of the new phones are actually hard wired.

F 9921 **$12.90**

### Extension Reel 15m

Rolls up neatly to the desired length standard plug and the reel has a double socket..

F 9103 **$24.60**

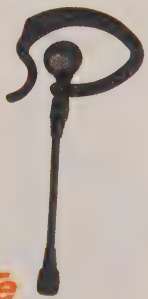


### Teletone Loud Ringer ES2FL

Teletone is an extension tonecaller which can assist persons with hearing difficulties to detect the phone ringing. Also ideal for open plan offices and small warehouses etc.

F 9949 **$75.80**

## PHONE HEADSETS



### DSE Cordless Phone Headset 900MHz

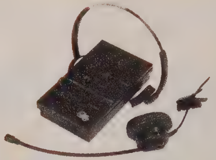
Suits 900MHz phones.

F 7032 **$30.80**

### Uniden Cordless Phone Headset 900MHz

Suits 900MHz phones.

F 9106 **$69.80**

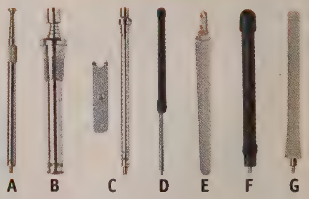


### DSE Universal Headset with Amp

Amp designed to suit 99% of phones & PABX. Change between headset and handset at the touch of a button. Has it's own amplifier so you can control the volume of the caller's voice.

F 9964 **$159.90**

## ANTENNAS



### Replacement Antennas for Cordless Phones

| | | | |
|---|---|---|---|
| **Metal** | | | |
| A. | Shimasu and other | F 7902 | **$16.80** |
| B. | Suits KXT3806/26/36 | F 7934 | **$29.90** |
| C. | Suits KXT3000 | F 9218 | **$32.60** |
| **Rubber** | | | |
| D. | Suits KXT3000 | F 7922 | **$29.90** |
| E. | Suits most Uniden | F 7930 | **$29.90** |
| F. | Sanyo Cordless | F 7938 | **$31.50** |
| G. | Rubber Antenna | F 9332 | **$19.90** |

## CORDLESS PHONE SPECIALIST BATTERIES

| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| S 3511 | Uniden XC633/630 | 3.6 | 140 | $27.95 |

| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| S 3513 | Uniden CT301, CS100/200, XC610/310/320/340 343/345/360/610, DX8200/834, XSA650/660, XCI660, XCA650, XCAI680, XS610 | 3.6 | 270 | $29.95 |

| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| S 3430 | DSE 10 channel c/less F 9320 | 3.6 | 280 | $27.95 |

| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| S 3507 | C5000 | 3.6 | 280 | $27.95 |

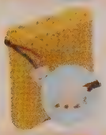
| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| S 3509 | Uniden Profile | 4.8 | 280 | $27.95 |

| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| S 3510 | Shimasu | 3.6 | 170 | $27.95 |

| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| S 3512 | Bellcom Cordless | 3.6 | 280 | $42.75 |

| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| S 6178 | Sanyo CLT 5200/5800<br>CLA1580 | 3.6 | 280 | $27.95 |

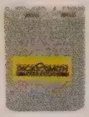
| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| S 7349 | Telecom Manhattan | 3.6 | 600 | $27.95 |



| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| S 7358 | Telecom 1150<br>Uniden DG910 | 3.6 | 600 | $27.95 |

| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| S 7359 | GEC Walkphone<br>Telecom 200/400 | 3.6 | 600 | $27.95 |

| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| S 7361 | Uniden XC301/310/320/340/343/360/650<br>Panasonic KXT1025/1045/1060/1105/1170/2503/2583/3716/3806/3826/4026/4046/4300 | 3.6 | 350 | $27.95 |



| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| S 9102 | Uniden DG900S<br>DGA940 | 3.6 | 600 | $49.95 |

| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| S 9103 | Uniden DS71/72/73 | 3.6 | 550 | $27.95 |

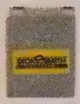
| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| S 9104 | DSE F9971/73/74 | 3.6 | 280 | $27.95 |

| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| S 3307 | Panasonic KX-T3000 | 3.6 | 110 | $27.95 |

| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| S 3421 | Panasonic KX-T4006 | 3.6 | 110 | $27.95 |

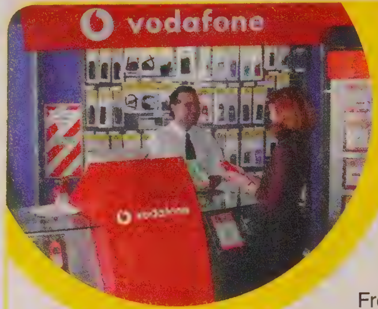
| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| S 7356 | Panasonic KX-T3716/3806/3826/4026/4046/4316<br>KX-TC187/1005/1025/1045/1105/1170/1200<br>KX-TCM418, KX-TCC116 | 3.6 | 300 | $27.95 |

| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| S 7360 | James Hardie CP1000 | 3.6 | 300 | $27.95 |



| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| F 9839 | Sony SP1010/2010 | 4 | 600 | $44.90 |

| Code | Compatible Phones | Voltage | mAh | Price |
|---|---|---|---|---|
| F 9406 | Uniden EXP9100/9200 | 6 | 600 | $49.90 |



## **Dick Smith Electronics** Cellular Specialists

Come to **Dick Smith Electronics** for all your mobile requirements. Our Cellular Specialists are specifically trained to deliver you the right rate plan and the right mobile phone to suit your needs.

From a high-end business solution to purchasing a phone simply to keep in touch. They will ensure you are not paying more every month than you need to for your communication needs, and with the vast array of services available through your mobile phone on the **Vodafone Network** they will ensure you have the necessary tools to efficiently manage your time, just ask in-store for a demonstration.

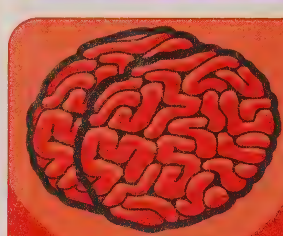
Let our Cellular Specialists tailor a solution for your needs and not confuse you with jargon – its mobile made easy @ Dick Smith Electronics. The Dick Smith Electronics Cellular Specialists can be found at the stores listed below or alternatively ask instore for the Cellular Champion at our other retail sites.

DICK SMITH ELECTRONICS
*That's where you go!*

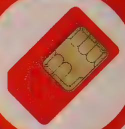
**Auckland:**
Albany, Glenfield, Wyndham St,
Newmarket, Pakuranga, Manukau,
Botany Downs

**Central Region:**
Palmerston North
**Wellington:** Featherston Street,
Manners Mall, Porirua

**South Island:**
Colombo Street – Christchurch
**Dunedin**



## The Vodafone SIMcard - the brains behind your mobile!



When you join Vodafone, you receive a **Vodafone SIMcard** – your connection to the Vodafone Network.

- It has a fantastic memory with space for a minimum of 125 names and numbers
- It can store all of your important contact names and phone numbers
- Keep your number. It stores your connection details, so that you can swap phones as often as you like but stay on the same Business, Personal or Prepay plan.

If you already have a Vodafone connection, simply take your **Vodafone SIMcard** out of your old mobile phone, "lock and load" it into your new mobile phone and all of your stored information will be ready to use. You can do this instantly without contacting Vodafone. Hassle free!!

Not only does your **Vodafone SIMcard** allow you to instantly upgrade to a new mobile without losing any of your stored information, it also keeps you on the same Business, Personal or Prepay plan.

And if you should ever get into a situation where your mobile gets damaged or, through extended use, runs out of battery power, simply "lock and load" your **Vodafone SIMcard** into another Vodafone mobile phone and it becomes your mobile, receiving only your incoming calls and billing your account for outgoing calls.

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# For everyone on Vodafone...

## 1 MINUTE, 1 SECOND ROUNDING

That's fair! We already do it for on-account customers, now calls for all Vodafone customers, including Prepay, will be charged for 1 full minute, and thereafter for each second. So customers only pay for what they use. The clock stops when you do.

## GREAT VALUE - 20 c MAX ON VOICEMAIL

Customers will now pay no more than 20c to listen to their voicemail.

Business customers will still get their first minute free and anything over that time will cost no more than 20c. Available minutes included in mobile plans will be used first. (1 minute each time)

## Vodafone Network Features

Everyone on Vodafone gets access to all of these fantastic services standard, regardless of your plan.

**text messaging**

Evry 1 on vdfn cn txt msg. Text messaging is easy, cheap and fun What more could you possibly ask for? SEND TEXT MESSAGES at 20 c each to any Vodafone mobile. And to over 70 countries around the world.

**callerID**

Want to know who's calling before you answer? No worries; everybody on Vodafone has callerID.

**callWait**

callWait lets you put one call on hold while you answer a new one. Then you can swap back and forth between the two calls.

**voiceMail**

voiceMail lets your callers leave a recorded message when you can't take the call.

**Free customer service**

Call us on 777 free from your Vodafone mobile or 0800 800 021 24 hours a day, 7 days a week.

**international calling**

Everyone can make international calls direct from their mobile, just add the country code.

**global roaming**

Everyone on Vodafone, including Prepay, can use their mobiles in over 70 countries around the world. Set up fee and credit check may apply.

**you've got email**

Throw away your PC! With a Vodafone mobile you can send and receive emails from anywhere. And you get calendar/scheduler tools and a whole lot more.

**screen tattoos and ringtones**

Choose your own ringtone or tattoo for your mobile. And remember, playing safe on these things is for sissies.

**close2u**

Finds where you are and the closest services to you, like fast food outlets and gas stations.

**sports results to your mobile**

Keen on sports such as Rugby, Netball, Rugby League, Cricket, Soccer, Motorsport, Golf or Tennis? We'll send you key sporting results from New Zealand and around the world.

**web2txt**

Send txt messages from your PC to your friend's & family's 021 -mobile. The first five messages each day are free.

**wicked welcomes**

Wicked Welcomes are wacky pre-recorded voiceMail greetings from Vodafone that you can personalise and change as often as you like.

**TXTgames**

Enter the world of Mr Big with TXTgames. Play against your friends or Mr Big.

**TXTchat**

If you like internet chat rooms, you'll love TXTchat. It's a real chat room on your mobile. Wckd.

Check out **www.vodafone.co.nz**

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## Vodafone Business Plans - spoilt for choice

***More flavours than ever before with Vodafone, you get more than a great range of Business Plans to choose from.***

You get the choice of going on a "Fixed Term" contract (and enjoying a discounted price on your mobile phone), or spending a little more on your mobile phone, and enjoying the freedom of a "No Term" contract, with lower monthly access fees.

***You get all of the Vodafone network features plus a whole range of extra business services***

- ***Global Roaming***
  We go where you go. Your phone, your number in over 70 countries. Any business plan customer can request Global Roaming. Get off the plane and turn on your phone!
- ***Internet to your mobile***
  You can get news, sharemarket reports, weather updates, sports results and lots more. If you have a WAP enabled mobile, we can bring the Internet straight to you, wherever you are.
- ***phoneInsure***
  Ordinary insurance may not cover your mobile. This insurance does. You can insure your mobile against theft, loss and damage.
- ***personalOperator***
  Set up your phone to regularly divert to another number. You specify the times and days it diverts, so you don't have to remember.
- ***free2Call***
  Let friends, family and customers call you on your mobile without them having to pay for the call. Put your callers first.
- ***faxMail***
  Receive faxes as messages on the go. Download at your convenience.
- ***messagePage***
  Turns your mobile into a pager. And you don't even need a separate number.
- ***voiceMail Plus***
  voiceMail with a turbo-drive. Lets you send one message to multiple phones with one call.
- ***groupCall***
  Talk to up to 5 people at once.
- ***advanced business services***
  With Vodafone you have access to an advanced range of business solutions. From EFTPOS to CRM applications.

**Want to know more about these Vodafone plans or services?**
- Talk to your Dick Smith Cellular Specialist
- Or visit **www.vodafone.co.nz**

***Business at full throttle***

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## Vodafone Personal Plans - Any way you want

**No term commitments on Personal plans, so you're not locked in**

**If you will be making most of your calls mainly during nights and weekends then a personal plan is the best option for you. Personal plans start from as low as $20 per month and include a bunch of free minutes and text messages to use each month. Giving you great value for your money.**

**So much choice on personal plans, all the standard features plus..**

- **Plan check**
  When you're on a Daytime or Nights and Weekends plan we want to make sure that you're on the plan that gives you best value. Ask us how this works.
- **credit limit**
  Puts a limit on your account and helps control your spending.
- **phoneInsure**
  Ordinary insurance may not cover your mobile. This insurance does. You can insure your mobile against theft, loss and damage.
- **free2Call**
  Lets friends, family and customers call you on your mobile without them having to pay for the call. Put your callers first.
- **callForwarding**
  When you can't take calls, but you still want your callers to get through, callForwarding lets you divert them to another phone number.
- **Global Roaming**
  We go where you go. Your phone, your number in over 70 countries. Any personal plan customer can request Global Roaming. Get off the plane and turn on your phone!
- **Need help?**
  Call us on 777 free from your mobile, any time, any day.

**Want to know more about these Vodafone plans or services?**
- Talk to your Dick Smith Cellular Specialist
- Or visit **www.vodafone.co.nz**

DICK SMITH ELECTRONICS
*That's where you go!*

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## **Vodafone Prepay** - Total control with all the trimmings

With Vodafone Prepay there's no monthly bill, no contracts and no credit checks. If you don't want to make a lot of calls it's the perfect way to keep costs under control. And it's so easy - just pay in advance and you're away.

**Choose from TWO Prepay plans...**

- **Prepay Nights & Weekends** with different peak and off peak rates, and
- **Prepay Anytime** with one flat rate. Choose the one that works for you!

**Daytime 7am - 7pm, Monday to Friday.**
Weekends and evenings 7pm Friday to 7am Monday, including national public holidays and 7pm to 7am Monday to Friday. Doesn't include regional anniversary days.

**Want to change Prepay plans?**
If you want to switch Prepay pricing plans, the first change is free. Call 777 free from your mobile.

**Prepay Roaming**
We go where you go. Take your Prepay phone and number to over 70 countries. Just $10 to get set up. Fill in an application at Dick Smith Electronics, at least 48 hours before you leave New Zealand and roam for up to 60 days.(Credit criteria applies)

## Connecting and 'Topping Up'

### Hey There...

Here's how to connect your wicked new mobile to the Vodafone Prepay Network.

Pre pay
Prepay
connection pack
$20
vodafone

E 1591

1. Get yourself a Vodafone Connection Pack that includes airtime, to get you started.
2. Read the booklet to get up and running.
3. Lock & load your SIMcard into your new mobile and you're away.

### Topping up

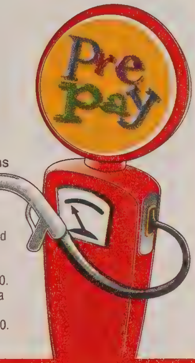
Top Up by buying a $20 or $50 recharge card from Dick Smith Electronics stores.

Pre pay
$20
Pre pay
$50
vodafone

E 0449 E 1592

There's also a whole range of electronic options available.

To keep your Vodafone Prepay account active and your unused credit "alive" you need to 'Top up' at least once every 12 months with a minimum of $20. All Prepay top ups must be in a whole dollar amount. The minimum top up amount is $20.



All Vodafone prices are correct at time of publication and may be subject to change

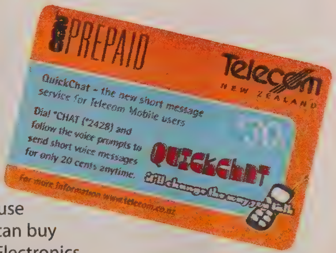
vodafone

## Telecom NEW ZEALAND GO PREPAID

GO PREPAID
Telecom
$20
HALF PRICE QUICKCHAT WEEKENDS

E 0247
$20

E 0248
$30


GO PREPAID
Telecom
NEW ZEALAND
QuickChat - the new short message service for Telecom Mobile users
Dial *CHAT (*2428) and follow the voice prompts to send short voice messages for only 20 cents anytime.
QUICKCHAT
will change the way you talk
For more information www.telecom.co.nz

If you have a GO PREPAID mobile phone, you'll need to use GO PREPAID cards to pay for your call time in advance. You can buy GO PREPAID cards with call values $20 or $30 from Dick Smith Electronics. Please note, Freedom & Gold Mobile Phones can't be topped up using these cards.

*Please Read This: Mininum top up of $20 every 365 days to keep connection active.*

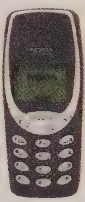
# Mobile Phone Accessories

| NOKIA | Leather Case | Travel Battery Charger | Double Combo | Portable Handsfree | Standard Battery | Vibrating Battery NiMH | AC Adaptor | Lion Battery | Belt Clip |
|---|---|---|---|---|---|---|---|---|---|
| RRP | $20 | $29.80 | $39.80 | $49 | from $59 | from $99 | $60 | from $99 | $25 |
| 918 | | E 0293 | | | E 0294 | | | | |
| 252 | | E 0311 | | | E 0283 | | | | |
| 5120 | E 0314 | E 0311 | E 0441 | E 0312 | E 0310 | E 2158 | E 2164 | | E 0313 |
| 6120 | E 0314 | E 0311 | E 0441 | E 0312 | E 0310 | E 2158 | E 2164 | | E 0313 |
| 5110 | E 0314 | E 0311 | E 0441 | E 0312 | E 0310 | E 2158 | E 2164 | | E 0313 |
| 5110i | E 0314 | E 0311 | E 0441 | E 0312 | E 0310 | E 2158 | E 2164 | | E 0313 |
| 3210 | | E 0311 | | E 2113 | E 2108 | | E 2164 | | |
| 3310 | E 2031 | E 0311 | E 2028 | E 2113 | E 2029 | | E 2164 | | |
| 6110 | E 0314 | E 0311 | E 0441 | E 0312 | E 0310 | E 2158 | E 2164 | | E 0313 |
| 6210/6310 | | E 0311 | | E 0312 | E 0310 | | E 2164 | | E 0313 |
| 7110 | | E 0311 | | E 0312 | E 0310 | | E 2164 | | E 0313 |
| 8210 | | E 0311 | | E 2113 | | | E 2164 | E 9062 | |
| 8250 | | E 0311 | | E 2113 | | | E 2164 | E 9062 | |
| 8310 | E 9055 | E 0311 | | E 2113 | | | E 2164 | E 9062 | |

Nokia 5110 5120

Nokia 5110i

Nokia 3210


Nokia 3310

Nokia 6110 6120

Nokia 6210

Nokia 7110

Nokia 8210

Nokia 8250

Nokia 918

Nokia 252

Nokia 8310

| ERICSSON | Leather Case | Travel Battery Charger | Portable Handsfree | Standard Battery | Antenna | AC Adaptor | Chat Board |
|---|---|---|---|---|---|---|---|
| RRP | $20 | $29.80 | $49 | from $59 | $19.95 | $60.00 | $30 |
| AH618 | | E 0286 | | E 0287 | E 3507 | E 3173 | |
| DH618 | | E 0286 | | E 0287 | E 3507 | E 3173 | |
| KF788 | | E 0286 | | E 0258 | | E 3173 | |
| GA628 | | E 0286 | | E 0287 | E 3507 | E 3173 | |
| GF768 | | E 0286 | | E 0258 | | E 3173 | |
| A 1018S | | E 0286 | | E 0287 | | E 3173 | E 3182 |
| A 2618S | E4161 | E 3273 | E 3271 | | | E 3277 | |
| T 10 | | E 0286 | | E 0258 | | E 3173 | E 3182 |
| T 28 | | E 3273 | E 3271 | | | E 3277 | |
| R 310S | | E 3273 | E 3271 | | | E 3277 | |
| R 320 | | E 3273 | E 3271 | | | E 3277 | |
| T 39M | | E 3273 | E 3271 | | | E 3277 | |
| T 68 | | E 3273 | E 3271 | | | E 3277 | |

Ericsson 618

Ericsson GA628

Ericsson KF788

Ericsson A1018s

Ericsson T10

Ericsson A2618s

Ericsson T 68

Ericsson T 39M

Ericsson T28

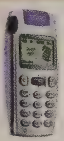
Ericsson 310s

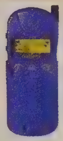
Ericsson 320

# *Mobile Phone Accessories*

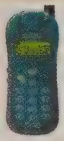
| ALCATEL | Leather Case | Travel Battery Charger | Double Combo | Portable Handsfree | Standard Battery | AC Adaptor |
|---|---|---|---|---|---|---|
| **RRP** | **$20** | **$29.80** | **$39.80** | **$49** | **from $59** | **$60** |
| DB Max | E 0409 | E 0406 | E 0407 | E 0405 | E 0408 | E 0427 |
| DB Club | E 0409 | E 0406 | E 0407 | E 0405 | E 0408 | E 0427 |
| DB View | E 0409 | E 0406 | E 0407 | E 0405 | E 0408 | E 0427 |
| OTE DB | E 0409 | E 0406 | E 0407 | E 0405 | E 0408 | E 0427 |
| HF | | E 0429 | | | E 0431 | |
| OTE Max | | E 0429 | | | E 0431 | |
| OTE | | E 0429 | | | E 0431 | |
| OTE View | | E 0429 | | | E 0431 | |
| 302 | E 2221 | E 0406 | E 2223 | | | |
| 311 | E 9057 | E 9063 | | | E 9067 | E 9060 |
| 511 | E 9058 | E 9063 | | | E 9067 | E 9060 |

**Alcatel 311**


**Alcatel 511**


**Alcatel HF**

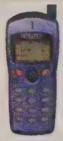
**Alcatel OTE**


**Alcatel OTE db**

**Alcatel View db**

**Alcatel Max db**

**Alcatel Club db**


**Alcatel 302**

**Alcatel Max**

| MOTOROLA | Travel Battery Charger | Portable Handsfree | Standard Battery | Lion Battery | AC Adaptor |
|---|---|---|---|---|---|
| **RRP** | **$29.80** | **$49** | **from $59** | **from $99** | **$60** |
| Profile | E 5306 | | E 5313/4 | | |
| Microtac | E 5306 | | E 5313/4 | | |
| Startac | E 2606 | E 2544 | E 2611 | E 0281 | |
| V 2288/T 2288/T 3000 | E 2547 | E 2544 | | | E 2543 |

**Motorola T300**

**Motorola Profile**

**Motorola Startac**

**Motorola T2288**

**Motorola T2288**

**Motorola V2288**

| PHILIPS | Leather Case | Travel Battery Charger | Double Combo | Portable Handsfree | Standard Battery | AC Adaptor |
|---|---|---|---|---|---|---|
| **RRP** | **$20** | **$29.80** | **$39.80** | **$49** | **from $59** | **$60** |
| ISIS | | E 0218 | | | E 0216 | |
| Savvy | E 0438 | E 0458 | E 0456 | E 0457 | E 0439 | E 3879 |
| Vogue | E 0438 | E 0458 | E 0456 | E 0457 | E 0439 | E 3879 |

**Philips ISIS**

**Philips Savvy**

**Philips Savvy Vogue**

# Caring for your Mobile

Dick Smith Electronics stock a wide range of cellular accessories for both Vodafone and Telecom mobile phones. These accessories have become a vital part of the cellular world from providing safety for the user while driving to being the latest fashion accessory. Come instore and check out what Dick Smith Electronics have on offer to make your life just that much easier.

### Universal Car Cradle

This little gadget works wonders in the car! Fits the majority of mobile phones in the market today, the phone fits snugly in the cradle. Just simply push the extended arm to release your phone. The Car Cradle comes complete with mounting equipment so you can place it at the best vantage point in your vehicle. *Phone not included

E 3146

**$34.50**

### Rotary Cellphone Holder

Your mobile is always at your fingertips with this nifty rotary holder. In the car, on the desk, on the fridge! Magnetic base works with all cellphones ensuring that your mobile phone is just where you left it.

E 9054

**$19.95**

*Phone not included

### Water Resistant Phone Pouch

Protect your cellphone or other valuable items.

E 3196

**$19.90**

*Accessories not included

### Standard Belt Clip for Nokia Phones

Always make sure your phone is safe and secure and in reach. It's easy with this belt clip. In a simple operation you can install the belt clip to your phone within seconds. You'll never lose your phone in your handbag or briefcase again! Available for Nokia 5110/5110i/5120/6110/6210/6120/7110.

E 0313

**$25**

*Phone not included

| Panasonic | RRP | GD 35 | GD 75 |
|---|---|---|---|
| Leather Case | $20 | E 9808 | E 9059 |
| Travel Battery Charger | $29.80 | E 9810 | |
| Double Combo | $39.80 | E 9809 | |
| Batteries | from $69 | E 9812 | E 9065 |
| AC Adaptor | $60 | E 9811 | E 9061 |

| SIEMENS | RRP | A 35/C 35i |
|---|---|---|
| Leather Case | $20 | E 9813 |
| Travel Battery Charger | $29.80 | E 9815 |
| Double Combo | $39.80 | E 9814 |
| Batteries | from $69 | E 9817 (A 35) |
| AC Adaptor | $60 | E 9816 |

**Panasonic**
**GD 35**

**Panasonic**
**GD 35**

**Panasonic**
**GD 75**

**Siemens**
**A 35**

**Siemens**
**C 35i**

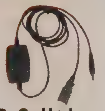
## ORIGINAL NOKIA FACEPLATES

| Description | Cat No. | Price |
|---|---|---|
| Nokia 3310 – Clear | E 9213 | $35 |
| Nokia 3310 – Clear - Blue | E 9214 | $35 |
| Nokia 3310 – Clear - Pink | E 9215 | $35 |
| Nokia 3310 – Clear - Aqua | E 9216 | $35 |
| Nokia 3310 – Blue | E 2036 | $45 |
| Nokia 3310 – Red | E 2037 | $45 |
| Nokia 3310 – Grey | E 2038 | $45 |
| Nokia 3310 – Yellow | E 2039 | $45 |
| Nokia 3310 – Silver | E 2040 | $45 |

**Our range of faceplates is constantly updated please check instore or online**

## USB CHARGES FOR NOKIA PHONES

**USB Cellphone Charger**
Suits 3210, 3310, 8210, 8250 & 8850.
E 2358 $18.20



**USB Cellphone Charger**
Suits 5110, 6110, 6210, 6310 & 7110.
E 2359 $19.95

## PLANTRONICS M130 HEADSET FOR MOBILE AND CORDLESS PHONES

**World leaders in Communication Headsets**

This mobile over-the-ear headset is designed and engineered for use in noisy environments.
E 9818 $74.95

| | | |
|---|---|---|
| E 9005 | Nokia 5100/6100 | **$14.50** |
| E 9012 | Nokia 3210 | **$14.50** |
| E 9006 | Ericsson T 28 | **$14.50** |
| E 9008 | Ericsson 600 | **$14.50** |
| E 9009 | Siemens 35/45 | **$14.50** |

# *Baby Monitors & Intercoms*

**Kiddicall**

## Baby Monitor

Clip the receiver to your belt or mount it on your desk/wall and you'll always know what your baby's up to! It can run on either batteries (not included) or mains power. Has power-on indicator, voice-activation and volume control.

F 1270 **$69.95**

**PHILIPS**

## Baby Monitor SC362

This baby monitor is totally cordless for your convenience. It has a good transmitting distance (range) of up to 150m. It is extremely sensitive, picks up any baby sounds and is main operated with battery back up if installed. Comes complete with 2 mains adaptors.

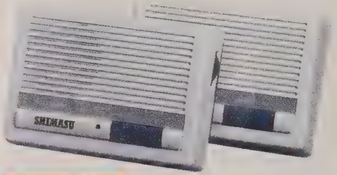
F 9919 **$129**

**PHILIPS**

## Long Range Baby Monitor SC365

This cordless babysitter has a great transmitting range of up to 300m. Comes complete with Pilot Tone to reduce RF interference, transmission control alerts you to a loss of communication between the baby and parent units. Also has a visual indicator for sound free baby observation, a battery low indicator and rechargeable batteries.

F 9975 **$189**



**SHIMASU**

## Wired Intercom

Great for around the home or office, this bargain priced intercom has adjustable volume control, push-to-talk button and a monitoring indicator. Includes master and sub station plus cable.

F 1034 **$29.90**

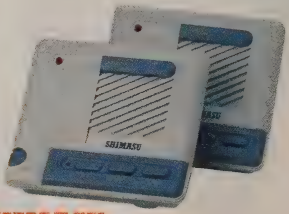
new for 2002

**SHIMASU**

## 2 Channel Wireless Intercom

Perfect for the home or small office, this wireless intercom offers two channels, LED power indicator and AC power operation.

F 1245 **$98.80**



**SHIMASU**

## 3 Channel Wireless Intercom

Voice activated, no talk buttons to press. Talk-lock key for room monitoring. Volume control. Plugs into a mains outlet. Wall or desk mountable. Expandable up to three stations.

F 1255 **$129.80**

Additional station F 1256 **$64.90ea**

## LABEL MACHINES

**brother** THAT'S WHERE YOU GO!

## P-Touch PT65

With the compact, handheld design of the PT-65, you can create adhesive backed labels for virtually any application from the kitchen to the family room to the home / office.

F 9069 **$59.90**

new for 2002

**brother**

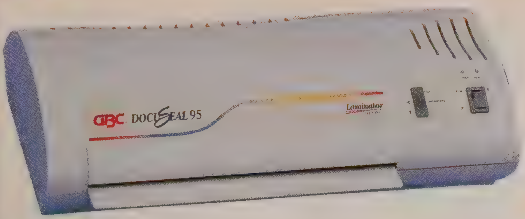
## PT-1750 Label Machine

The PT-1750 delivers the performance and quality you need to create professional laminated labels. This highly versatile, very affordable electronic labelling system uses durable, laminated "TZ" tape.

F 9076 **$149**

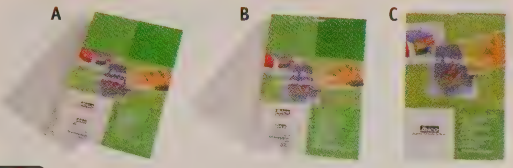
### P-TOUCH REPLACEMENT LABELS

| | | | |
|---|---|---|---|
| **Brother PT 15** | | | |
| Black on White Laminated 12mm | TC-201 | F 1506 | **$38.00** |
| **Brother PT 65/85/100** | | | |
| Black on Blue 9mm | M521 | F 1601 | **$22.80** |
| Black on Gold 9mm | M821 | F 1603 | **$22.80** |
| Black on Silver 9mm | M921 | F 1604 | **$22.80** |
| Black on White 9mm | M-K221 | F 1634 | **$22.80** |
| Black on White 12mm | M-K231 | F 1635 | **$24.80** |
| **Brother PT 320/530/540/1100/1800/1750** | | | |
| Black on Clear 9mm | TZ-121 | F 1680 | **$39.80** |
| Black on Yellow 9mm | TZ-621 | F 1681 | **$39.80** |
| Black on White 9mm | TZ-221 | F 1631 | **$39.80** |
| Black on White 12mm | TZ-231 | F 1683 | **$39.80** |
| Black on Clear 12mm | TZ-131 | F 1614 | **$39.80** |
| Red on White 12mm | TZ-232 | F 1689 | **$39.80** |
| Black on White 18mm | TZ-241 | F 1685 | **$44.00** |



## GBC Docuseal 95 Laminator (A4)

GBC DocuSeal 95 is ideal for laminating legal-size documents, letters, certificates, luggage tags, photo IDs and more. Laminating enhances and protects your documents with a clear gloss finish. Works best using Ibico laminating pouches.
F 9082 **$259**



new for 2002

## IBICO Laminating Pouches

| | | | |
|---|---|---|---|
| A. | F 9083 | A4 100 Pack (80 micron) | **$49.90** |
| B. | F 9084 | A4 25 Pack (125 micron) | **$22.90** |
| C. | F 9085 | A4 100 Pack Credit Card (125 micron) | **$9.90** |

## GBC CO-8 Straight Cut Shredder

This is a great shredder for the home office ideal for disposing of household documents. A slimline personal straight cut shredder shreds up to 5 x A4 pages in one go. Comes complete with 16 litre bin and has auto, forward and reverse functions.
F 1337 **$99**

Available mid July 2002

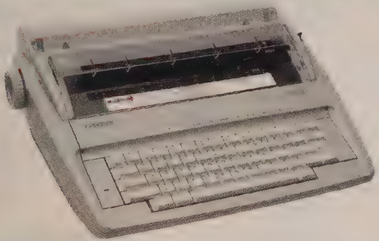
new for 2002

## GBC C-10S Straight Cut Shredder

The C-10s Straight Cut Shredder is compact and ideal for use in the office to dispose of confidential documentation. Shreds up to 8 A4 sheets in one go and comes complete with a 20 litre bin. Auto, forward and reverse options. Affordable option for the busy office.
F 9308 **$179**

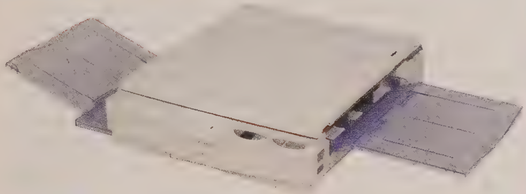
Available mid July 2002

new for 2002



## brother Typewriter GX6750

This is a sturdy and well featured typewriter perfect for the home office. Includes auto "word out" correction, auto underline, bold, right margin flush, variable pitch and line indent.
F 9890 **$249**



## Canon FC220S Personal Copier

Zero warm up time for instant copies. Auto shut off saves energy. Total portability with built in carry handle. Copies A4 to postcard size. 50 sheet paper feed tray. Unique all-in-one cartridge for virtually maintenance free performance.
F 9254 **$749**

## TYPEWRITER & WP RIBBONS

| | | | |
|---|---|---|---|
| Brother PY80 typewriter ribbon | 15 pages | F 1662 | **$9.75** |
| Brother Carbon Ribbon: AX325, WD800 & 1700, GX6750 | 15 pages | F 0819 | **$12.95** |
| Brother Corrector for Carbon Ribbon | | F 0822 | **$9.50** |
| Brother Nylon Ribbon AX325, WD800 & GX6750 | 100 pages | F 0726 | **$27.80** |
| Brother Cover Up for Nylon Ribbons WD800 | | F 0725 | **$12.50** |
| Canon Starwriter 25 Ribbon pack of 2, 20 pages per ribbon | 20 page ribbon | F 9057 | **$28.80** |

## INKJET CARTRIDGES

| | | | |
|---|---|---|---|
| Brother Colour WP6700/530/550 | up to 200 pages | F 1623 | **$99.80** |
| Brother Mono Cartridge WP6700/DP530/550 | up to 1000 pages | F 1624 | **$87.60** |

## COPIER CARTRIDGES

| | | | |
|---|---|---|---|
| Canon FC220/FC220S Toner Cartridge | Approx 3720@5% | F 9960 | **$295.00** |
| Sharp Z25/26 Copier Cartridge | Approx 2000@5% | F 9355 | **$159.95** |

# *Faxes – Thermal & Plain*

Thermal

**brother**

## 515 Fax

A compact fax, phone and copier all in one small unit. This fax has an automatic paper cutter, anti-curl system, image smoothing and incorporates advanced features with superb value for money. With amazingly clear reproduction, this easy to use machine will suit the home fax user or low volume user. 10 page auto-document feeder, 50 programmable speed dials with Alpha tagging, and can take both 30 and 50 meter thermal paper rolls. On screen programming help makes set up easy. The Brother 515 is compatible with Telecom services CallerDisplay* and FaxAbility*.

F1052

**$299**

## FAX FACTS

Faxes are a faster form of communication than a letter, or a courier, and it means you can send and receive information quickly and easily.

Dick Smith Electronics offer our customers a wide range of fax machines from thermal or plain paper options through to multifunction centres and laser machines. But what's the difference...

### Thermal Facsimile:

Uses thermal technology and prints onto rolls of thermal paper, we offer a basic thermal model – very handy to have in the home.

### Plain Paper Facsimile:

This option is growing quickly in popularity, the reason is that they are now very reasonably priced and at the same time packed with features. The biggest benefit of plain paper over thermal is that the fax is received on plain paper which doesn't fade over time like thermal, making it ideal for information that must be stored or kept. Some of our models also have built-in answer machines.

Plain Paper

**brother**

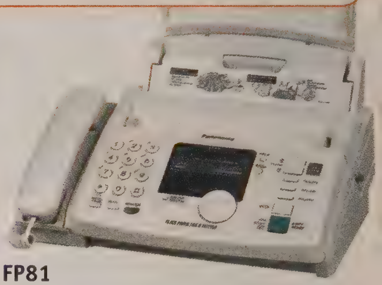
## Plain Paper Fax 645

A great entry model plain paper fax. With a 512kb memory so you can store up to 20 pages in memory which means you have broadcasting and out of paper reception options. Has 54 station auto dialling, a 10 page auto document feeder. Has enlarge and reduce capabilities on its copier function and can copy up to 99 copies. Plus it can take up to 30 sheets of plain paper, offers quick scan, and is FaxAbility* and Caller Display* capable.

F 9996

**$329**

Plain Paper



**Panasonic**

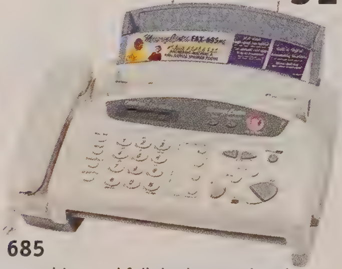
## Plain Paper Fax FP81

The Panasonic Easy Dial system makes accessing up to 100 names and numbers from the directory easy. This fax is capable of 100 station speed dials. Has a 28-page document memory so means it is broadcast capable. Plus it has a 10-page document feeder. The enhanced copier function means you can enlarge or reduce in a couple of simple steps. All this plus it can take up to 50 sheets of plain paper, has electronic volume control, quick scan option and is FaxAbility* capable.

F 0164

**$349**

Plain Paper



**brother**

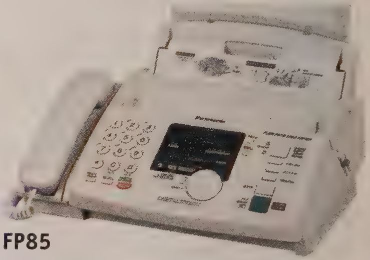
## Plain Paper Fax 685

A fax, a digital answer machine and full duplex speakerphone in one machine. The answer machine gives you up to 15 minutes of voice messages or up to 20 fax messages should it run out of paper. Remote access to your voice or fax messages is also possible. Plus this fax offers 14.4kbps fax modem, 54 station auto dialling, a 10 page auto document feeder, broadcast capability, enlarge and reduce capabilities on its copier function. It can also take up to 30 sheets of plain paper in its cassette, offers quick scan, and is FaxAbility* and Caller Display* capable.

F 9997

**$429**

Plain Paper



**Panasonic**

## Plain Paper Fax FP85

A great fax plus fully digital answer machine and full duplex speakerphone all in one unit. The answer machine gives you the flexibility to receive faxes or voice messages while you're away. The digital duplex speakerphone means echo is reduced so you enjoy clear conversations. Plus it offers the Easy Dial system, 14.4kbps fax modem, 100 station speed dials, 28-page document memory, broadcast capability, enhanced copier function, 50 sheet paper cassette, quick scan option and is FaxAbility* and CallerID* compatible.

F 0165

**$449**

*Please Note: Telecom Smart Phone Services like FaxAbility, CallMinder, Caller Display etc are area/exchange dependent and a monthly charge applies.

## FAX FACTS

**Laser Facsimile:**
An ideal solution if you are wanting high quality resolution, comparatively low running costs, and if you are receiving 10 plus faxes a day. Laser faxes are a larger investment, however the long term running costs are notably lower.

**Multifunction Centres:**
Are all in one units. They are not just plain paper facsimiles but they also scan, copy, print and PC fax. They offer a complete office solution.

Come and see the team at

DICK SMITH
ELECTRONICS
*That's where you go!*

They will make sure you get the fax that best suits your needs.

Inkjet + Email

**Panasonic**

### Inkjet Fax UF-E1

Fax via email - With the UF-E1 you will have a convenient, powerful tool at your disposal. Send and receive e-mail just as you would a fax - so now you can send handwritten or printed paper documents direct to a desktop email address. And that's not all a SuperG3 fax, plain paper copier, digital answering machine, telephone with speakerphone and colour inkjet printer all combined into a single unit small enough to fit on your desk, the UF-E1 is ready to handle all your document management and communication tasks.

F 9044 **$599**

Laser

**brother**

### Laser Fax 2850

With 2MB memory store 130 pages for out-of-paper reception, Quick Scan memory transmission, or broadcasting to multiple locations. Dual Access capability lets you scan faxes into memory while sending or receiving. Includes a 14.4K bps modem, 20-page auto document feeder, 200-sheet paper cassette and 46 station auto dialing. Delivers laser quality printing, 10page per minute printing. Also makes multiple copies, sorts, enlarges and reduces, with automatic Fax/Telephone switching lets you receive both fax and voice calls on a single phone line.

F 9074 **$899**

Plain Paper

**Panasonic**

### Plain Paper Fax TAM/2.4GHz Cordless Phone

The Panasonic KX175AL-G Plain Paper Fax with 2.4GHz Cordless Phone and Digital Answering Machine has it all for your communications needs. With the transmission range of the 2.4GHz cordless phone you can go places and when an incoming fax is received you can easily divert it to the fax machine at the touch of a button. With 50 sheet paper capacity, 10 sheet auto-document feeder, journal reporting, automatic fax/phone switching and enhanced copier funtions this is ideal machine for the home or office.

F 0520 **$699**

Multi-function

**brother**

### Multi Function Centre Fax MFC3100c

This 4 in 1 intelligent multifunction centre is ideally suited for any home or office. Whether for personal or business use this single compact unit will always deliver high quality results. With up to 2400 - 1200 dpi resolution and both parallel and USB interfaces the MFC3100c is compatible with Windows*, iMac/iBook/G3/G4. Not only a top quality printer but a complete communications tool with colour scanning, colour copying and faxing. With 20 page auto-document feeder, 40 station auto-dialling and broadcasting up to 90 locations. Includes ScanSoft, PaperPort and TextBridge OCR software for easy scanning options and includes Brother PC fax driver for sending faxes from your PC. *(Please check standard requirements)

F 9077 **$699**

SmartRing+
Ring decoder
FaxAbility

### Saturn Smart Ring Decoder

Allows you to have a new and separate telephone number for your modem, fax and other phones on the same line. Easy installation, powered by phone line and comes with 0800 support line help.

F 9911 **$109**

CLEANING PAPERS

### DSE Fax Cleaning Kit

Keep your fax machine in top condition by regularly cleaning it. Kit includes cleaning solution, buds, brushes, air brush and cleaning tissue.

F 0888 **$19.90**

*Please Note: Telecom Smart Phone Services like FaxAbility, CallMinder, Caller Display etc are area/exchange dependent and a monthly charge applies.

# Fax Consumables

DICK SMITH ELECTRONICS
That's where you go!

| Cat No | Suits Models | Yield | Price |
|---|---|---|---|
| F 0161 | Thermal Ribbon Twin Pack - Suits Sharp 780/880 | yield approx 90 pages per roll | $29.90 |
| F 0162 | Thermal Ribbon Twin Pack - Suits Sharp 1450/1460/1650/1660 | yield approx 470 pages per roll | $45.70 |
| F 0519 | Thermal Ribbon Twin Pack - Suits Panasonic FP81/85/FC175 | yield approx 150 pages per roll | $39.90 |
| F 0153 | Thermal Ribbon Twin Pack - Suits Panasonic FP101/121/1110 | yield approx 330 pages per roll | $67.90 |
| E 0170 | Thermal Fax Paper Roll 30m | | $4.95 |
| F 0836 | Thermal Fax Paper Roll 50m | | $6.95 |
| F 0959 | Thermal Fax Paper Roll 20m | | $5.95 |

## brother

| Cat No | Suits Models | Supplier Code | Yield | Price |
|---|---|---|---|---|
| F 0802 | Telecom 950M Thermal Ribbon | PC95 | yield approx 400 pages | $74.50 |
| F 0818 | 1200P Thermal Ribbon & Cartridge | PC101 | yield approx 700 pages | $109.00 |
| F 0127 | 1020/1030/MFC1970 Thermal Ribbon | PC201 | yield approx 420 pages | $49.95 |
| F 9933 | 920/930/945/985 Thermal Ribbon | PC301 | yield approx 235 pages | $49.95 |
| F 9932 | 920/930/945/985 Twin Pack Thermal Ribbons | PC302 | yield approx 470 pgs total-235/roll | $69.95 |
| F 9111 | 645/685 Ribbon & Cartridge | PC401 | yield approx 144 pages | $49.95 |
| F 9114 | 645/685 Thermal Roll | PC404RF | yield approx 144 pages | $29.95 |
| F 0861 | 2750/3750/MFC6650/8000/8200/MF C9500 Laser Toner Cartridge | TN200HL | yield approx 2,200 pages @ 5% | $69.95 |
| F 9075 | 2850 Laser Toner Cartridge | TN8000 | yield approx 2,200 pages @ 5% | $69.95 |
| F 0937 | Brother 515/Homefax/520/525 Anticurl Thermal Paper roll | ThermaPlus | 30m rolls x 2 | $34.80 |
| F 0125 | 515/520/525/645/685/920/930/800 | Multi Function Link – Allows connectivity for most Brother fax machines to your PC | | $240.80 |
| F 9956 | MFC7160 Black Ink Cartridge | FA.LC02BK | yield approx 750 pages @ 5% | $48.30 |
| F 9957 | MFC7160 Cyan Ink Cartridge | FA.LC02C | yield approx 400 pages @ 5% | $26.00 |
| F 9958 | MFC7160 Magenta Ink Cartridge | FA.LC02M | yield approx 400 pages @ 5% | $26.00 |
| F 9959 | MFC7160 Yellow Ink Cartridge | FA.LC02Y | yield approx 400 pages @ 5% | $26.00 |
| F 9901 | MFC7400C/9200C Black Ink Cartridge | LC04BK | yield approx 750 pages @ 5% | $49.95 |
| F 9902 | MFC7400C/9200C Cyan Ink Cartridge | LC04C | yield approx 400 pages @ 5% | $29.95 |
| F 9903 | MFC7400C/9200C Magenta Ink Cartridge | LC04M | yield approx 400 pages @ 5% | $29.95 |
| F 9904 | MFC7400C/9200C Yellow Ink Cartridge | LC04Y | yield approx 400 pages @ 5% | $29.95 |
| F 9078 | MFC3100C/5100C Black Ink Cartridge | LC21BK | yield approx 950 pages @ 5% | $59.60 |
| F 9079 | MFC3100C/5100C Cyan Ink Cartridge | LC21C | yield approx 450 pages @ 5% | $32.80 |
| F 9080 | MFC3100C/5100C Magenta Ink Cartridge | LC21M | yield approx 450 pages @ 5% | $32.80 |
| F 9081 | MFC3100C/5100C Yellow Ink Cartridge | LC21Y | yield approx 450 pages @ 5% | $32.80 |

## Panasonic

| Cat No | Suits Models | Supplier Code | Yield | Price |
|---|---|---|---|---|
| F 9362 | KX-F110/FP101/FP121 | KX-FA136 | yield approx 660 pgs total-330/roll | $82.20 |
| F 0166 | KX-FP81/85/FC175 Thermal Ribbon x2 | KX-FA55A | yield approx 330 pgs total-165/roll | $49.95 |
| F 9045 | UF-E1 Black Ink Cartridge | PC-20PK | yield approx 940 pages @ 5% | $79.95 |
| F 9046 | UF-E1 Colour Ink Cartridge | PC-20CL | yield approx 340 pages @ 5% | $119.95 |

Telecom NEW ZEALAND

Telecom Smart Phone services offer a wide variety of additional benefits to your fax/phone line.
All services are subject to Telecom credit approval and are billed on your monthly Telecom account.
Some services may not be available in all areas.

### FaxAbility

Enables you to use a phone and a fax machine (with two separate numbers) on a single phone line.

### Call Waiting

Lets you know that another caller is trying to get through when you're on the phone.

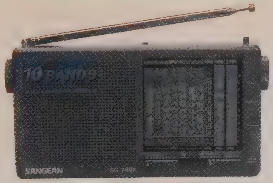
### Caller Display

Lets you see the phone number of the incoming call before you answer it.

### Call Minder

A 24-hour call answering service that takes messages for you when you're out or on the phone.

**SANGEAN**



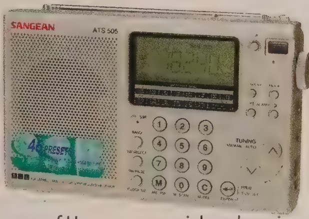
### SG-789A 10-Band Portable Shortwave Receiver

Receives local AM and FM stations (FM stereo with optional headphones) as well as 8 popular international shortwave bands. Features Bandspread Tuning system for easier station tuning, LED tuning indicator, excellent sound reproduction, solidly built chassis, sockets for optional headphones and AC adaptor. Soft carry case, requires 3 x "AA" batteries, compact size just 160 x 85 x 27mm. (Batteries not included).

D 2834

**$89**

**SANGEAN**



### ATS-505 Shortwave Receiver

Sangean's latest digital tuning model provides coverage of local AM/FM stations, longwave and shortwave signals, plus provides SSB tuning for coverage of Ham, commercial, and marine signals. Includes 45 memories for easy recall of your favourite stations, and a large backlit LCD screen. Requires 4 x "AA" batteries.

**Features:**

| | | |
|---|---|---|
| Frequency Coverage: | AM: 522-1710kHz | FM: 87.5-108MHz |
| | LW: 153-279kHz | SW: 1.711-29.999MHz |
| Tunings Steps: | 1kHz/5kHz on SW, 1kHz/9kHz on AM, 50kHz/100kHz on FM | |

Dual time settings, DX/Local sensitivity switch, external shortwave antenna socket, variable BFO control for SSB reception, 14 SW band divisions, complete with stereo earphones and carry case

D 2807

**$279**

**SANGEAN**

### ATS-909 Deluxe Shortwave Receiver

Has full AM/FM/LW coverage of local stations, and continuous 1.715-29.999 MHz coverage for international Shortwave signals, Commercial and Marine traffic, and Ham radio and CB transmissions. HF reception modes includes AM for shortwave broadcasters (1kHz and 5kHz tuning steps), and SSB for Ham, Commercial and Marine signals with tuning steps of 40Hz and 1kHz. 307 memories are for storing your favourite frequencies (261 on SW, 18 each for MW/FM, and 9 for LW), with battery-free EEPROM memory back-up. Requires 4 x "AA" batteries or AC mains adaptor (not included). Also has • Auto Tuning system for strongest signal location • Narrow/Wide I.F filters for clearer SW reception • FM stereo via earphones • Battery and signals strength indicator • External shortwave antenna socket • Worldtime clock covering 42 cities • Complete with stereo earphones, ANT-60 wind-up antenna, and carry case.

D 2849

**$479**

**SANGEAN**

### ATS-404 Compact Shortwave Receiver

Fantastic value for a digital tuning shortwave receiver! The new Sangean ATS-404 provides direct keypad frequency entry and 45 memories for easy and accurate tuning, plus its Auto Tuning System will locate the strongest local stations and memorise them for you (9 on AM, 18 on FM). Requires 4 x "AA" batteries.

**Features:**

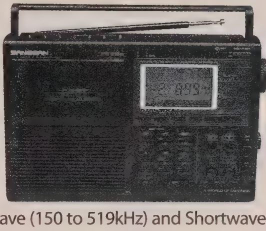
| | |
|---|---|
| Frequency Ranges: | AM: 522-1710kHz |
| | FM: 87.5-108MHz |
| | SW: 2.3-26.1MHz |
| Tuning Steps: | 5kHz (SW), 9/10kHz (AM), 100kHz (FM) |

45 station memories, direct keypad entry, scanning, and Auto Tuning System for frequency selection, alarm, sleep timer, and dual clocks. 3 audio tone settings, mono/stereo switch for FM reception, earpiece for FM stereo provided, soft carry case. Includes 14 pre-set shortwave bands.

D 2844

**$189**

**SANGEAN**



### ATS-818CS All-Band World Receiver with Cassette

This professional-quality receiver is very easy to operate with 45 station memories and a large digital display.

**Features:** • Covers AM/FM, Longwave (150 to 519kHz) and Shortwave (1.711 to 29.999MHz) in 1kHz steps. • Dual time display for local and UTC, plus full alarm clock functions • AM wide/narrow IF filters for clearer reception • Pushbutton selection of major SW bands from 120m to 11m • Adjustable RF gain prevents overloading from very strong signals • BFO (Beat Frequency Oscillator) control for receiving SSB & Morse Code signals • Cassette recorder with chrome tape facility, auto stop and standby recording function.

D 2842

**Limited Stocks**

**$399**

**SANGEAN**

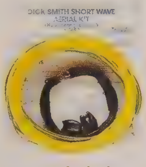
### Portable Shortwave Antenna

Want to boost the performance of your portable shortwave radio? Then you need this wind-up reel-style antenna. It extends to a full 7 metres (23ft), yet fits in a shirt pocket! Connects via a 3.5mm mini plug or the supplied adaptor that clips onto your portable's telescopic antenna.

D 4400

**$19.95**

**DSe**



### Shortwave Antenna Kit

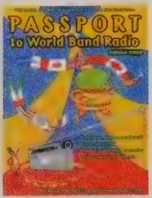
Get the very best from your equipment with this high-quality shortwave antenna kit. Comes ready-to-assemble with long wire antenna, lead-in, polyrope and "egg" insulators. It doesn't need soldering and comprehensive instructions are included.

K 3490

**$45**

## BOOKS

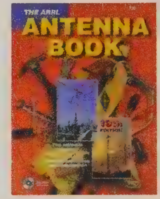
### Passport to World Band Radio 2002



Passport to World Band Radio is the world's #1 selling shortwave publication, pulling in tens of thousands of readers year after year.

B 2063 $61⁹⁵

### ARRL Antenna Handbook, 19th Edition



Learn how to design and build your own antenna. The latest computer modelling techniques have improved traditional antenna designs. With this book, you will find a new treatment of broadband antennas, gain and size comparisons for multi-element arrays, and updated information on log periodic, quad, long-wire and travelling wave antennas. Includes CD-ROM.

B 2214 $75

### The Beginner's Handbook of Amateur Radio, Fourth Edition

Explains radio and electronics fundamentals needed to set up a transmitter and become a licensed 'ham' operator. Take this book home, and it will take you into the realm of communication, new friends, good times, and technical mastery beyond your dreams.

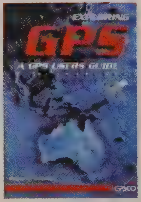
B 7490 $87⁹⁵

### ARRL Ham Radio Handbook 2002

The 2002 ARRL Handbook is an unbeatable source as an electronics and communications reference. In its pages, you will find the collective wisdom of generations of experts that continues a long tradition of technical excellence.

B 2239 $89⁹⁵

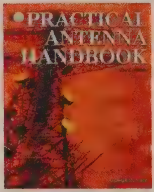
### GPS User's Guide 2nd Edition



This is an invaluable book with practical information on marine applications and implications of GPS. Includes coastal navigation and safety at sea, with descriptions of GPS, GLONASS, and the Inmarsat system.

B 9656 $24⁹⁵

### Practical Antenna HandBook



Suitable for anyone with an interest in antennas, from the novice to the engineer. Blends theoretical concepts with practical lessons learnt from actually building and using antennas.

B 7480 $82⁴⁰

## SCANNERS

**Uniden**

### 10 Channel Scanner 60XLT

Listen in on exciting radio frequencies including those used by commercial services, emergency services such as Ambulance, as well as Amateur and UHF PRS. Uniden 60XLT includes 12.5kHz frequency steps on hi-band VHF. This 10-channel programmable VHF/UHF receiver covers the 66-88, 137-174 and 406-512MHz frequency ranges. Uses 4 x "AA" Alkaline or 4 x "AA" NiCad batteries (not included).

D 2748 $209

**Uniden**

### Scanning Receiver 120XLT

Provides nine-band VHF/UHF coverage including airband, 100 memories, and improved super fast Scan and Search features (scan up to 100 channels/sec, search at 100 or 300 steps/sec). Covers 66-88 MHz, 108-174MHz, and 406-512MHz frequency ranges. Also features direct keypad channel access, 10 priority channels, data skip and memory back-up. Complete with NiCad battery pack, AC charger and detailed instructions.

D 2752 $361

**Uniden**

### 248CLT Desktop Scanner

This Uniden UBC-248CLT not only provides coverage of the commercial VHF and UHF bands, but also covers the local AM and FM broadcast bands! Fully programmable, the 248CLT features a full frequency backlit LCD screen, 50 memory channels, an Alarm clock function, Scan and Search operation, plus battery-free EEPROM memory backup.

D 2747 $321

new for 2002

ICOM

## IC-R2 Scanning Receiver

One of the smallest scanners around, the IC-R2 is simple to operate, compact, and features a wide frequency range from 495kHz - 1309.995MHz with FM, WFM, and AM receive modes. 400 memory channels, auto squelch, tone squelch scan and priority watch functions. Requires 2 x AA NiCad or Alkaline cells.

D 2808 $614

Uniden

## 245XLT Scanning Receiver

State of the art 10 bank, 300 channel scanner with non-volatile memory backup. 10 priority channels (one per bank), plus data skip, channel lockout and a built in attenuator. Searches at up to 300 channels per second on turbo search, or 100 channels per second on normal searches.

D 2735 $629

Uniden

## 3000XLT Scanning Receiver

The Twin-Turbo 3000XLT scanner provides wide 16-band frequency coverage (25-549MHz, 760-1300MHz), a large back-lit LCD screen, 400 memories divided into 20 banks for easier scanning, together with super-fast Scan and Search functions (scan up to 100 channels/sec, search at 100 or 300 steps/sec). Other features include Auto Sort for faster bank scanning, 10 priority channels, selectable Search step sizes (5, 12.5, 25, 50kHz; and 30kHz on 800MHz), Scan/Search delays, battery-free memory back-up, and an Attenuator to reduce overload from very strong signals. Complete with NiCad battery pack, AC charger, flexible antenna, carry case and detailed instructions.

D 2730 $638

## Uniden 780XLT Desktop Scanning Receiver

500 channel scanner with 2 line alphanumeric display allowing tagging of channels, banks, or search ranges. CTCSS support allows the user to assign tone codes to specific frequencies. Frequency coverage up to 1300MHz. Supplied with AC and DC power supplies, telescopic antenna and mounting bracket.

Features:

- Frequency coverage: 25-512MHz
- 806-956MHz, and 1240-1300MHz
- 10 Priority channels
- Battery-free memory back-up
- Text tagging for easier channel or Bank identification
- 500 memory channels divided into 10 banks
- PC interface for use with third-party software
- Screen masking and dimming

D 2737

**Customer Order only** $899

new for 2002

ICOM

## IC-R3 Scanning Receiver

The new video capable IC-R3 gives you an amazing range of information. Along with frequency coverage from 495kHz right up to 2.450GHz, the IC-R3 gives you TV reception on the 2" TFT colour display. Added to this, the screen also doubles as a signal strength indicator and band scope. 400 memory channels with alphanumeric naming, AM, WFM, and FM reception modes, and a wealth of other features.

D 2804

**Customer Order only** $1283

## AOR AR-8200 Series 2 Scanning Receiver

The new AR-8200 Series 2 handheld scanner offers very wide frequency coverage (530kHz - 2040MHz), 1000 memory channels, and improved receiver circuitry.

All-mode reception - WFM, NFM, SFM (Super-narrow FM), WAM, AM, NAM, USB, LSB and CW. Special tuned receiver front-end for improved VHF receiver performance.

Includes high-capacity 1000mAh NiCad batteries, telescopic antenna, AC adaptor/charger, cigarette lighter lead, belt-clip and carry strap, plus a comprehensive operating manual.

D 2727

**Customer Order only** $1559

# Scanner Antennas

## SCANNING RECEIVER FREQUENCY RANGE COMPARISON TABLE

| | Uniden UBC60XLT | Uniden UBC120XLT | Uniden UBC248CLT | Uniden UBC235XLT | Uniden UBC3000XLT | Uniden UBC780XLT | AOR AR 8200 | Icom IC R2 | Icom [illegible] |
|---|---|---|---|---|---|---|---|---|---|
| 495kHz – 520kHz | | | | | | | | ■ | ■ |
| 520kHz – 530kHz | | | NON SCANNING | | | | | ■ | ■ |
| 530kHz – 1629kHz | | | NON SCANNING | | | | ■ | ■ | ■ |
| 1629kHz – 25MHz | | | | | | | ■ | ■ | ■ |
| 25MHz – 66MHz | | | | | ■ | ■ | ■ | ■ | ■ |
| 66MHz – 88MHz | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| 88MHz – 108MHz | | | NON SCANNING | | ■ | ■ | ■ | ■ | ■ |
| 108MHz – 137MHz | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| 137MHz – 174MHz | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| 174MHz – 350MHz | | | | | ■ | ■ | ■ | ■ | ■ |
| 350MHz – 406MHz | | | | | ■ | ■ | ■ | ■ | ■ |
| 406MHz – 512MHz | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| 512MHz – 549MHz | | | | | ■ | | ■ | ■ | ■ |
| 549MHz – 760MHz | | | | | | | ■ | ■ | ■ |
| 760MHz – 806MHz | | | | | ■ | | ■ | ■ | ■ |
| 806MHz – 956MHz | | | | ■ | ■ | ■ | ■ | ■ | ■ |
| 956MHz – 1300MHz | | | | | ■ | ■ | ■ | ■ | ■ |
| 1300MHz – 2039MHz | | | | | | | ■ | | ■ |
| 2039MHz – 2450MHz | | | | | | | | | ■ |

## MOBILE

### Compact Mobile Scanner Antenna

Improve your portable or mobile scanner's performance with this compact antenna. The 'Scantenna' covers VHF/UHF bands from 70MHz to 525MHz including VHF and UHF commercial, VHF aircraft and UHF CB channels. It's fitted with a standard 5/16" female thread (D 4516 base recommended) and is protected by a strong white heatshrink covering. Approx. 700mm long.

D 4434 **$27.80**

**Limited Stock**

MOBILE ONE

### "Scanducky" Handheld Scanner Antenna

The "Scanducky is a wideband antenna designed for use with handheld scanners. It provides improved reception capabilities compared to the standard antenna supplied with most handheld scanners. Approximately 400mm long, and moderately flexible, the Scanducky is fitted with a BNC plug which suits most scanners. Covers 25MHz to 1300MHz.

D 4433 **$38**

### Uniden Mobile Scanner/Transceiver Antenna

The all new 'Bandscanner' from Mobile One not only covers the 27-1300MHz receive scanning range, but also allows transmissions on the UHF CBand commercial bands, as well as the Air band. It's an extremely effective mobile scanner antenna, providing high efficiency through the use of a wideband UHF whip with helical traps. Standard 5/16" thread.

D 4437 **$44**

## BASE

### Base/Portable Scanner Antenna

Increase your scanner's coverage with this quality 1.55m antenna tha covers the major scanner bands from 27MHz to 1300MHz. It's easy-to-mount with an inbuilt eye-hook, or it can be mast-mounted with optional clamps. Comes fitted with 3.5m of coax and a BNC plug allowing easy connection to most modern scanners.

D 4432 **$89**

DIAMOND ANTENNA

### D-130J Discone Antenna

This high quality Japanese discone antenna covers the frequency range 25-1300MHz and comes complete with mast-mounting hardware and instructions. It's easy to assemble and install, while the extensive stainless-steel construction makes it extremely durable. A wide frequency coverage means that it's ideal for use with scanning receivers, as well as transmitters up to 200W PEP for the 6m, 2m, 70cm and 23cm amateur bands.

D 4840 **$229**

## Electronic Home Weather Station WM-918

This new electronic Weather Station is ideal for use at home or the office as its easy to read display helps you understand the changing phases in the local weather and gain a better understanding of what the weather will bring in the near future. The WM-918 Weather Station lets you monitor the air temperature, relative humidity, dew point temperature (indoors and outdoors), as well as barometric pressure, wind speed/direction, wind chill, and rainfall rate. This information helps it provide forecast icons for the weather 12-24 hours in advance for within a 30-40km radius of its location, so you can plan your outdoor activities - from a picnic to simply knowing when to carry your umbrella. The WM-918 is easy to install, and is supplied with the Weather Station control panel, combined anemometer and wind box, cabling, various mounting hardware and an AC adaptor. 8 x "AAA" size batteries are required. PC cable required for PC connectivity (not included).

D 3960

**PC Cable to suit** X 2610 **$18.20**

**$499**

## Compact Weather Station

Now everyone can keep track of the changing weather with their own home Weather Station. This stylish unit provides an Electronic barometer (with Altitude compensation) showing actual barometric pressure and its trend over the last 24 hours, so you can gauge the likely changes in the weather, or make use of the forecast that the Weather Station provides. Also measures indoor temperature and relative humidity to provide a Comfort indication. Desk or wall mountable. Measures 108 x 136 x 27mm (WHD). Requires 4 x "AAA" batteries.

D 3952

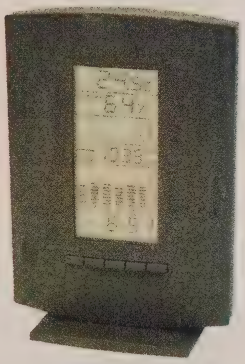
**$129**

## Deluxe Weather Station

The Deluxe Weather Station features a very large LCD screen for easier viewing and can be either wall or desk-mounted. Provides greater temperature resolution, plus clock (with alarm) and a calendar function, plus selectable C/F temperature and mb/inHg pressure readouts. Other functions include an electronic barometer with "last 24 hrs" pressure trend graph and direct readout, relative humidity display and general weather forecast icons. Includes fold out desk stand. Measures 133 x 182 x 26mm (WHD). Requires 4 x AAA batteries.

D 3954

**$159**

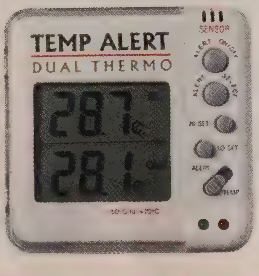


## Dual Temperature Alert Thermometer

This thermometer monitors temperatures indoors and outdoors. It has 2 large, easy-to-read screens and a control alert when temperatures become too high or low.

Y 5011

**$34.80**



## Thermometer/ Hygrometer/Clock

This thermometer hygrometer clock is ideal for greenhouses, offices or homes. It reads indoor/outdoor temperatures and humidity. It's compact, slim design incorporates 12/24-hour clock function, min/max temperatures and relative humidity memory.

Y 5189

**$62.90**

**GARMIN**

### eTrex GPS Receiver

Palm sized waterproof GPS with proven 12 channel performance. Great for keeping track of your favourite fishing spots – it'll store up to 500 waypoints and last for up to 22 hours on 2 AA size batteries. 30 user-configurable waypoint icons allow you to easily distinguish your favourite locations.

- 64 x 128 pixel display
- 500 waypoints
- 1 reversible route
- Waypoint Icons
- NZ Grid Reference compatible
- Battery-free data memory

D 3898 **$449**

etrex
HOME
6.4
14:44 TO GO
SPEED
26.0
GARMIN

**GARMIN**

### eTrex Venture GPS Receiver

The eTrex Venture offers several advantages to the user, the LCD screen resolution is enhanced and the GPS now includes a basic worldwide point database of major cities. Operation is simplified with the addition of a 5 position Click Stick control on the face of the unit.

- 160 x 288 pixel display
- 5 position cursor switch
- 20 reversible routes
- 1Mb internal memory
- Loran TD position format
- PC cable included as standard

D 3477 **$699**

**Customer Order**

etrex
VENTURE
GARMIN

**GARMIN**

### eTrex Legend GPS Receiver

The eTrex Legend is the ideal travelling companion with a built-in base map of Australia and New Zealand. The base map features major towns, roads, rivers and lakes. The map presentation is sharp and clear on the enhanced 160 x 288 pixel LCD screen. The Click Stick allows the user to easily scroll through menus, enter data and move the map panning arrow. The 8Mb internal memory makes it capable of accepting downloads from optional MapSource CD ROMs.

- 20 reversible routes
- Built in calendar
- Hunting and Fishing Calendar
- Backlit LCD display
- PC Cable included as standard

D 3478 **$875**

**Customer Order**

etrex
LEGEND
Ready To Navigate
Accuracy 16 Feet
GARMIN

**GARMIN**

### eTrex Camo GPS Receiver

The perfect GPS for hunters and fishermen, the Camo adds a hunting and fishing calculator to the basic functions of the eTrex to guide you in planning your sporting excursions. It also incorporates a celestial information page and a 4 level grayscale backlit display.

- 64 x 128 pixel display
- 500 waypoints
- 1 reversible route
- Hunting and fishing calculator
- TrackBack function
- Over 100 map datums

D 3476 **$539**

**Customer Order**

etrex
TRAIL
1.45
52:46 TO GO
SPEED
2.6
GARMIN

**GARMIN**

### eTrex Summit GPS Receiver

This all-in-one navigation device for the outdoor enthusiast is the first combination GPS, altimeter and electronic compass. The electronic compass provides bearing information when you're standing still and the altimeter determines precise altitude, so you can tell how high you've climbed and your rate of ascent.

- 4 level grayscale LCD display
- 20 reversible routes
- 500 waypoints
- Electronic Compass
- Barometric Altimeter

D 3881 **$876**

**Customer Order**

etrex
SUMMIT
Altimeter
Elevation
6035
Totl Ascent
3500
Max Elev
11778
GARMIN

**GARMIN**

### eTrex Vista GPS Receiver

Great for hikers and climbers, the Vista combines all the base map features of the Legend (major towns, roads, rivers and lakes) with a built in electronic compass and barometric altimeter. Internal memory is also upgraded to 24Mb. Waterproof to IPX7 standards this palm sized GPS is a must for the serious outdoorsman.

- 24Mb internal memory
- Electronic Compass
- Barometric Altimeter
- 3000 TrackLog points
- 500 waypoints
- Dimensions: 112 x 51 x 30mm
- Weight: 150g (with batteries)

D 3479 **$1285**

**Customer Order**

etrex
VISTA
Altimeter
Elevation
6035
Totl Ascent
3500
Max Elev
11778
GARMIN

**GARMIN®**

## GPS12 GPS Receiver

The GPS12 is an affordable handheld GPS for outdoor adventurers who want the power of 12 parallel channels and rugged waterproof toughness without spending a bundle. The GPS12 now features an area calculation function – simply walk round a loop, and the GPS will calculate the area enclosed. 500 Waypoints, 1024 trackpoints with reversible routes.

D 3944

**$548**

**GARMIN®**

## eMap GPS Receiver

The Garmin eMap introduces an innovative and exciting new level of technology for Australasian users. The unit is preprogrammed with a comprehensive electronic map of New Zealand and Australia. The map details main and secondary roads, cities, towns, rivers and lakes, all displayed on a large grey scale LCD display. The 12 channel GPS shows your position, speed and direction on the map and leaves an electronic breadcrumb trail as you're travelling. Using the optional PC interface cable and MapSource CDROMs you can create or delete waypoints, tracks and routes using your PC.

D 3894

**$876**

## GARMIN® GPS12XL GPS Receiver

The Garmin GPS 12XL is all about performance. It features a 12 parallel channel receiver for amazingly fast satellite acquisition and tight satellite lock, even under tree cover. The 12XL is loaded with navigation information including 105 pre defined map datum and 7 grid formats. Store your camp sites and fishing spots among the 500 waypoints or add them to any of 20 routes. The proximity waypoint feature gives advanced warning of nearby hazards while the TracBack function helps you find your way home.

D 3945

**$744**

**Customer Order**

**GARMIN®**

## GPS76 GPS Receiver

The GPS76 is a receiver with a marine focus – if accidentally dropped overboard it will actually float. It also features a large 41 x 56mm backlit display for easy viewing and a built in quad helix antenna for superior reception.

- Anchor drag alarm
- Built in Celestial tables
- Fishing/hunting calculator
- PC cable included.

D 3483

**$846**

**Customer Order**

## GARMIN® GPS 2 Plus

The GPS 2 Plus has a large, state of the art display with two-way screen display for horizontal or vertical orientation. It also boasts 12 parallel channels and an external antenna for fast satellite acquisition and enhanced reception.

- 12 parallel channels
- External antenna
- Selectable waypoint symbols
- Diagonal panning
- Auto start/stop trip timer
- Average and maximum speed recordings
- Internal lithium back up battery
- Tracback function
- 4x"AA" batteries (not included) provides 24 hours of use

D 3926

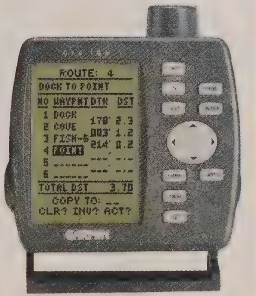
**$759**

**Customer Order**

**GARMIN®**

## GPS126 GPS Receiver

With a high contrast 10.8cm LCD display and powerful 12 parallel channel receiver, the GPS126 is the ideal choice for the navigator who wants more than a handheld – without the cost, complexity and large footprint found in typical fixed mount units. The built-in antenna makes the GPS126 perfect for the mariner that navigates from an open console. Features a customised moving map display with user-selectable waypoint symbols and comments. User-selectable navigation pages provide graphic steering guidance to your destination, eliminating the guesswork when you're trying to find your favourite hot spot.



D 3899

**$870**

**Customer Order**

## GPS128 GPS Receiver with remote mount antenna

D 3484

**$943**

**Customer Order**

# Garmin GPS Accessories

## CARRY CASES

### eTrex GPS Carry Case

Carry case to suit eTrex and eTrex Summit GPS Systems.
D 3886 $\$39^{40}$

### GPS Carry Case

Protective case for your Garmin GPS38/12/12XL/2PLUS.
D 3895 $\$42^{40}$

### eMap GPS Leather Carry Case

Durable genuine leather with magnetic lock on flap.
D 3885 $\$45^{60}$

### GPS 76 Carry Case

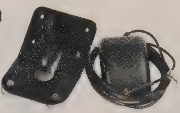
Wide top zippered opening and belt loop. Protective case for your GPS76.
D 3485 $\$39$

## ANTENNAS

### External Magnetic Antenna

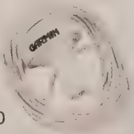
A low profile external antenna with 3.0 metres cable, MCX or BNC connector. To suit most Garmin GPS Products.
BNC: D 3897
MCX: D 3879 $\$149$

### Magnetic/Suction GPS Antenna



This improved remote antenna runs on a lower voltage so battery drain is reduced. Comes with 2 mounting options. Magnetic mount for the outside of your vehicle or boat. Suction mount holds antenna in place against the inside of the windshield or window.
D 3880 $\$179$

### Marine GPS Antenna



If you're mounting your GPS unit below deck, you'll need this remote marine antenna to receive GPS signals. Comes with 30 feet of cable and BNC connector.
D 3882 $\$234$

## CIGARETTE POWER LEADS

### NZ DC Power Lead for eTrex/eMap

To suit eTrex series/eMap.
D 3891 $\$106$

### Cigarette Lighter Adaptor for GPS12

To suit GPS12/38.
D 3922 $\$84$

### Cigarette Lighter Lead

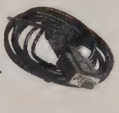
To suit GPS12XL/II+/GPS76.
D 3946 $\$84$

## DATA LEADS

### NZ PC Cable for eTrex/eMap GPS

To suit eTrex series/eMap.
D 3890 $\$94$

### NZ Garmin PC-GPS Interface Cable



To suit GPS12/38/12XL/II+/GPS76.
D 3883 $\$99$

## POWER/DATA LEADS

### Cigarette/Data Lead LE28

To suit eTrex series/eMap.
D 3489 $\$116$

### Cigarette/Data Lead LE45CI

To suit 12XL/II+/GPS76.
D 3488 $\$110$

### GPS Map Source Software

MapSource
WorldMap
GARMIN

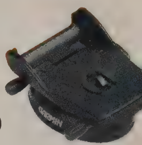
Trip and waypoint management software for Garmin GPS units. Provides world map data including coastal outlines, rivers & towns.
D 3884 $\$290$

### GPS User's Guide 2nd Edition

This is an invaluable book with practical information on marine applications and implications of GPS. Includes coastal navigation and safety at sea, with descriptions of GPS, GLONASS, and the Inmarsat system.
B 9656 $\$24^{95}$

## MOUNTING BRACKETS

### Bike Mounting Bracket for eTrex



Mounts easily to any handlebar up to one inch (25mm) in diameter.
D 3887 $\$51^{40}$

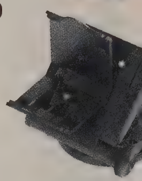
### Car Mounting Bracket for eMap

Mount your eMap on the dash of your car. Swivel base and adjustable bracket make positioning easy.
D 3892 $\$128$

### Bike Mounting Bracket for eMap

Mount your eMap GPS receiver on you bike! The bracket has a quick release for removing the eMap for storage.
D 3893 $\$59^{40}$

### NZ MKT45 Bracket for GPS12/12XL



In car mounting bracket to suit the Garmin GPS 12, 12XL, 38, 45 and 48.
D 3955 $\$69$

### Swivel Mounting Bracket

Swivel mounting bracket to suit a 2 Plus GPS System.
D 3889 $\$68$

### Car Mounting Bracket for 2 Plus

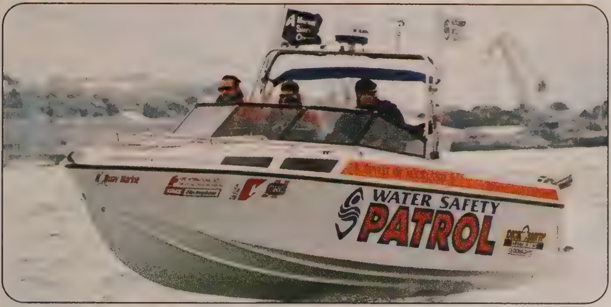
Car mounting bracket to suit a 2 Plus GPS System.
D 3888 $\$88$

### Marine Mounting Bracket for GPS76

This adjustable marine mount swivels and tilts for optimum viewing and has a locking mechanism to keep unit secure.
D 3486 $\$99$

### Car Mounting Bracket for GPS76

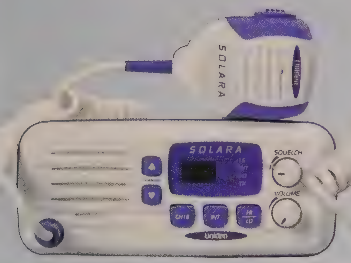
Holds your GPS in place on the dash of your vehicle. Bracket swivels and tilts for optimum viewing.
D 3487 $\$135$



VHF marine radios are a must for all boat users. Not only are they a great way to find where the fish are biting or just to talk to another friendly boat user but are vital in emergencies. It is recommended by the Royal New Zealand Coast Guard that every boat should have a VHF Marine radio on board.

| Features | MC1020 | HH955 | HH940 |
|---|---|---|---|
| All Channel Scan | ● | | |
| Battery Capacity/Standby | 600mAH/ 15hours | N/A | N/A |
| External Speaker Jack | | ● | ● |
| External Speaker Microphone Jack | ● | | |
| Illuminated Display | ● | ● | ● |
| Transmit Power in Watts | Switchable 1 or 5 | Switchable 1 or 25 | Switchable 1 or 25 |
| User Selectable Scan | ● | | ● |
| Splashproof | | ● | ● |
| Fully Waterproof | ● | | |
| Triple Watch | | | ● |
| Dual Watch | | ● | ● |

new for 2002



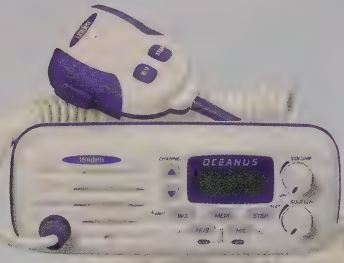
**Uniden**

### MA635 VHF Marine Radio

This off-shore radio is weather resistant and allows you to choose between 1 watt output, for close range communication, and 25 watt output, for maximum transmission power.
D 1702

**$398**

new for 2002

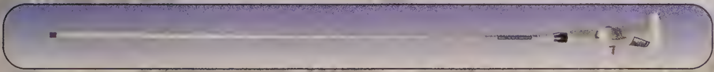


**Uniden**

### MA2020 VHF Marine Radio

Designed to withstand the harshest marine conditions. You can select either a PA output or normal marine communications with the touch of a button. Also switch between 1 watt output, or 25 watt output, to provide full transmission power.
D 1699

**$528**



### VHF Marine Antenna

156-162 MHz, ground independent, comes with 3.6 metre cable.
A perfect match for the Uniden MA635 (D-1702) or the Uniden MA2020 (D 1699).
D 4014

**$84**

### VHF Marine Antenna

1.8m halfwave Marine antenna suitable for the Uniden MA635 (D1702) or the MA2020 (D1699) Marine VHF radios. Has 3dB gain and a fold down mount for when not in use.
D 4084

**$98**

new for 2002

**Uniden**

### MA500 VHF Marine Radio

This handheld unit is ideal for go anywhere convenience. It is a fully waterproof (to US Coast Guard standards), portable two-way radio that is compact and lightweight and fits easily into the palm of your hand. You are able to switch between 1 watt output, to preserve the life of the battery and 5 watt output, which provides maximum transmission power. Choose between either the standard Nickel Metal Hydride (NiMH) battery or six AA batteries as an alternative option (alkaline battery pack included). The reversible large backlit LCD display allows for viewing in front of the unit, or while it is attached to your belt, in any conditions. Also included: cigarette lighter lead, flexible rubber antenna.
D 1701

**$498**

# 26MHz CB & Accessories

**Uniden**

### PRO 510XL AM CB Radio

40 channel AM CB radio. LED channel display. Signal/power output LED meter. Selectable automatic noise limiting for improved reception. Comes complete with heavy duty microphone and in car mounting kit.

D 1434 **$249**

**GME Electrophone**

### TX830N CB

Full 40 channel coverage with an interference suppression circuit for improved reception. Adjustable RF Gain Control • Instant Channel 15 Switch • LED signal Strength Indicator • Power/Modulation Indicator • Front Mounted Speaker • P.A. Function • External Speaker Socket • Suitable for Negative or Positive Earth Systems.

D 1436 **$289**

**Uniden**

### PC-122 Compact AM/SSB CB

With front-mounted microphone socket and a space-saving design, the PC-122 is ideal when limited dashboard space is available. It fits comfortably in most vehicles and is designed to match modern dashboards. Its superior features include: LED received signal and RF output indicators. Switchable noise limiter for clearer reception. Separate Volume Squelch, RF gain and Clarifier controls for easier operation. Covers all 40 channels on AM, LSB and USB. PA facility (requires optional speaker). Includes mic, mounting hardware and instruction manual.

D 1425 **Limited Stock** **$399**

**digitor**

### CB Extension Speaker

A compact 8 ohm extension speaker ideal for use with most CBs and scanning receivers. Uses a highly-sensitive 57mm plastic-cone 5W speaker for clear audio and comes with mounting bracket, screws and a 1.5m lead fitted with 3.5mm plug.

D 2250 **$25.40**

**MOBILE ONE**

### 26 MHz 60" (1.5m) Antenna

Mobile One's unique spiroid wind produces an antenna that maximises signal, exhibits a balanced field distribution and uniform radiation pattern. The radiator is coated with tough wearing heatshrink tubing for total weather protection. Model DX160CDN. Connector type 5/16".

D 4060 **$27.30**

**MOBILE ONE**

### 26 MHz 36" (91cm) Antenna

These special whips are manufactured incorporating the latest computer technology in helix design and are wound on an extra flexible fibreglass former. All Flexiwhips are designed to withstand even the harsh extremes of the New Zealand environment and are coated with tough wearing heatshrink tubing for total weather protection. Model DX136FWN. Connector type 5/16".

D 4061 **$27.30**

**MOBILE ONE**

### 26 MHz 12" (30cm) Rubber Duck CB Antenna

The extra low profile allows the vehicle to go anywhere without the height restrictions of larger antennas. Its precision tuned coil is constructed of enamel coated wire wound on an almost indestructible former. Model RDRMNZ. Connector type 5/16".

D 4063 **$29.40**

**Uniden**

### MS-100 CB Extension Speaker

Uniden
COMMUNICATIONS SPEAKER

A slimline 5W extension speaker for use where only a small mounting space is available. Comes with flush mounting bracket and lead fitted with a 3.5mm plug to suit most CBs and scanners. Size is: 73(W) x 66(H) x 37(D)mm.

D 2275 **$32.50**

### 26MHz 35" (92cm) Adjustable CB Antenna

Created for the user who wants the versatility of Adjustable Tip Tuning combined with a lightweight antenna suitable for easy removal and re-installation if necessary. Designed for light duty use and to suit many mounting applications such as Roof, Gutter, Mirror or Cowl Mount. Standard 5/16" female termination. Model DX435NZ.

D 4062

$\$29^{95}$

### 26MHz 36" (95cm) Antenna, Base, Lead and Connector

This pack contains a 36" helical whip antenna, 1/2 wavelength (3.6m) of RG58 coaxial cable, 1 x PL-259 connector and an antenna base, a mount all predetermined and tested. The complete whip is encapsulated in a PVC heatshrink coating for total protection against the environment. Standard 5/16" female antenna termination. Model DX136FWNZ/A12C.

D 4064

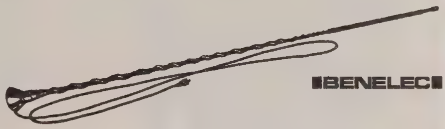
$\$29^{95}$

### 26MHz 59" (1.5m) Helical Antenna Pack

An extremely popular CB antenna, providing high performance in a compact package. Comes complete with a 1.5m helically-wound whip antenna, antenna base and 3.6m coax fitted with a moulded PL-259 plug.
Model 0451KND

D 4067

$\$39^{95}$



### 26MHz Heavy Duty 60" (1.52m) Antenna, Base & Lead Pack

The Mobile One Superhelical antenna kit is a complete antenna system suitable for the New Zealand 26 MHz Citizens Band. When mated with a stainless steel spring and a heavy duty antenna base, the antenna will provide excellent performance with the added benefit of a rugged spring and base mount. Model DX16050BPN

D 4068

$\$89^{95}$

### 26MHz 61" (1.55m) 'Superhelical' Whip Antenna

This continuously-loading helical whip is wound onto a rugged fibreglass former with a constant turn winding, and exhibits a radiation pattern similar to a full-sized quarter-wave whip for greater range. Tough PVC heatshrink covering ensures excellent weatherproofing. Standard 5/16" female termination. Model DX160SHNZ.

D 4151

$\$44^{95}$

### 26MHz 54" (1.36m) Heavy Duty Mobile Helical Antenna

Constructed with thick copper winding wire on a sturdy fibreglass rod and coated with a tough UV-resistant PVC heatshrink coating. This antenna has excellent performance and uses an adjustable tip tuning system. Standard 5/16" female termination. Model DX560NZ.

D 4152

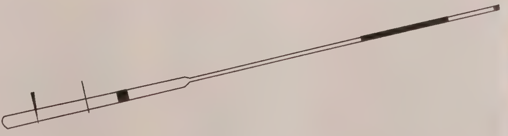
$\$54^{95}$

### 26MHz-28MHz Station Master II CB Base Antenna

This half-wave CB base station antenna uses high tensile T-81 grade aluminium tubing and a sealed base section for excellent long-term performance. Its broadband design provides over 2MHz bandwidth with SWR<1.5:1, so it's ready for both CB and marine CB operation without tuning. Uses standard SO-239 socket for coax connection, and comes with U-bolt mounting brackets.

D 4425

$137



Uniden
Uniden
Uniden
40
40
40

new for 2002

**Uniden**

## UH037 PRS Transceiver

The new Uniden UH-037 is a super compact handheld transceiver that's particularly simple to use. With a line of sight range up to 3km outdoors, it also has a Repeater access facility to assist with extending range in situations where a local repeater station is available. Solidly constructed, the UH-037 provides a large backlit LCD screen and a rugged removeable belt-clip for easier operation. Operates on 3 x "AAA" size batteries. No user license required.

- 500mW power output
- Full 40 channel coverage
- Auto Squelch
- Repeater Capable
- Backlit LCD display

D 1742

**$99**

### Accessories

| Item | Cat No. | Price |
|---|---|---|
| Carry Case | D 2041 | $39.70 |
| 2 pack Alkaline 'AAA' | S 7226 | $4.90 |
| 30 pack Alkaline 'AAA' | S 4041 | $26.00 |
| Lapel Microphone | Not applicable | |
| Mains Charger | Not applicable | |
| Earpiece/Microphone | Not applicable | |

**Uniden**

## UH040XR PRS Transceiver

An ideal personal radio for those friends or family members you need to keep in touch with. 40 channel PRS coverage with repeater access capability for added range where available, the UH-040 features a socket for optional speaker/microphones or headphone/microphones. Operates on 3 x "AA" size batteries. No user license required.

- 500mW power output
- Full 40 channel coverage
- Auto Squelch
- Repeater Capable
- Backlit LCD display
- Option for lapel speaker/microphone or earpiece/microphone
- Open and Group Scanning

D 1748

**$129**

### Accessories

| Item | Cat No. | Price |
|---|---|---|
| Lapel Speaker Microphone | D 2042 | $48.60 |
| Earphone/Microphone | D 2044 | $38.40 |
| Earpiece/Microphone | D 2018 | $68.00 |
| VOX Headset/Microphone | D 2039 | $119.00 |
| Mains Charger | D 1832 | $49.60 |
| Carry Case | D 2041 | $39.70 |
| Genuine Uniden Lapel Speaker/Microphone | D 2037 | $119.00 |

**Uniden**

## UH042XR PRS Transceiver

With all the features of the UH-040 and more, the Uniden UH-042 is a radio designed for workplace communication. Keep in contact across warehouses, shop floors, and factories. The transceiver has a built in CTCSS function to let you listen to only those people you want to listen to, plus voice activated, handsfree communication using an optional VOX Headset/Microphone.

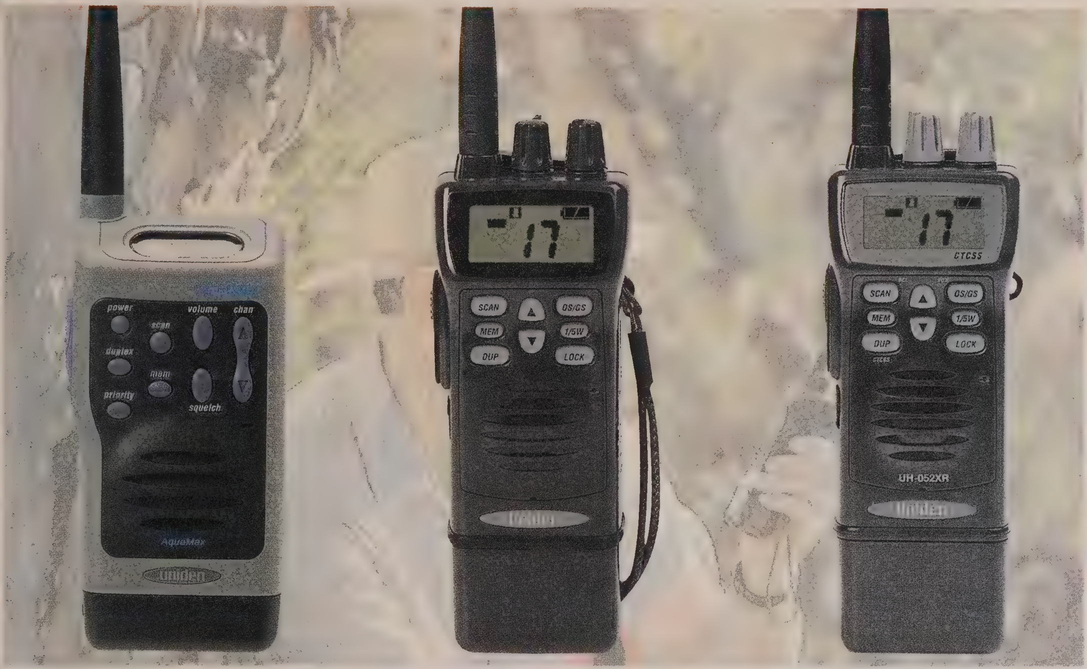
- 500mW power output • Backlit LCD display
- Full 40 channel coverage
- Auto Squelch • Repeater Capable
- Option for VOX Headset/Microphone
- Open and Group Scanning
- Priority Watch Scanning
- CTCSS

D 1749

**$199**

### Accessories

| Item | Cat No. | Price |
|---|---|---|
| Lapel Speaker Microphone | D 2042 | $48.60 |
| Earphone/Microphone | D 2044 | $38.40 |
| Earpiece/Microphone | D 2018 | $68.00 |
| VOX Headset/Microphone | D 2039 | $119.00 |
| Mains Charger | D 1832 | $49.60 |
| Carry Case | D 2041 | $39.70 |
| Genuine Uniden Lapel Speaker/Microphone | D 2037 | $119.00 |



**Uniden**

### UH-054 Waterproof PRS Transceiver

The perfect communicator for those who love the outdoors. Waterproof for up to 30 minutes at a depth of 30cm, the UH-054 Aquamax provides fishermen and farmers a radio that is built to last. Use the powerful 1W output for maximum range, or select the 200mW power level to conserve battery life for closer conversations. The unit comes complete with a rechargeable NiCad battery pack and a drop-in charger.

- Selectable 1W/200mW power output
- Full 40 channel coverage
- Repeater Capable
- Waterproof casing
- Backlit LCD display
- Open and Group Scanning
- Priority Watch Scanning
- Battery Level Indicator

D 1754

**$499**

Accessories

| Item | Cat No. | Price |
|---|---|---|
| Carry Case | D 1821 | $47.20 |
| Standard 400mAh Battery | D 1827 | $68.40 |
| High Capacity 850mAh Battery | D 1826 | $124.00 |
| Cigarette Lighter Power Lead | D 1828 | $34.95 |

**Uniden**

### UH050XR PRS Transceiver

The UH-050XR is a compact, rugged two way radio that will give you consistent, outstanding performance in virtually all conditions and situations. Its high 5W maximum power output maximizes your communication range while the large capacity 950mAh rechargeable battery pack ensures you'll remain in contact for the long haul. Repeater capable, the UH-050XR also features priority watch, group, and open scanning.

- Selectable 5W / 1W power output
- Full 40 channel coverage
- Repeater Capable
- Busy Channel Lockout Function
- Backlit LCD display
- Open and Group Scanning
- Priority Watch Scanning
- Battery Level Indicator
- Battery Charge Indicator
- Keypad Lock

D 1760

**$469**

Accessories

| Item | Cat No. | Price |
|---|---|---|
| Lapel Speaker Microphone | D 2042 | $48.60 |
| Earphone/Microphone | D 2044 | $38.40 |
| Earpiece/Microphone | D 2018 | $68.00 |
| Carry Case | D 2040 | $64.00 |
| Genuine Uniden Lapel Speaker/Microphone | D 2037 | $119.00 |

**Uniden**

### UH052XR PRS Transceiver

Top of the line radio packed full of features. With a built in voice activation function (only in conjunction with the optional VOX headset), it is ideal for those needing to talk on the move. Full scanning capabilities, coupled with built in CTCSS, busy channel lockout, switchable 5W / 1W output, and auto power save features, make this radio the only choice for those who want the best available.

- Selectable 5W / 1W power output
- Full 40 channel coverage
- VOX function (with optional headset)
- Busy Channel Lockout Function
- Backlit LCD display • Repeater Capable
- Open and Group Scanning
- Priority Watch Scanning
- Battery Level Indicator
- Battery Charge Indicator • Keypad Lock
- Splashproof design • CTCSS built in

D 1762

**$529**

Accessories

| Item | Cat No. | Price |
|---|---|---|
| Lapel Speaker Microphone | D 2042 | $48.60 |
| Earphone/Microphone | D 2044 | $38.40 |
| Earpiece/Microphone | D 2018 | $68.00 |
| VOX Headset/Microphone | D 2039 | $119.00 |
| Carry Case | D 2040 | $64.00 |
| Genuine Uniden Lapel Speaker/Microphone | D 2037 | $119.00 |

# *PRS Accessories*

## CARRY CASES

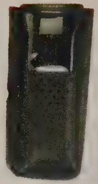
**Uniden Carry case for UH-040XR, UH-042XR**

Stylish carry case for your Uniden UH-040XR or UH-042XR.
D 2041 $39.70

**Uniden Carry Case for UH054 or HH940**

Protect your PRS (UH-054 Aquamax or Landmax) with this leather case.
D 1821 $47.20

**Uniden Carry Case for UH050 or UH052**



Handy carry case for your Uniden handheld transceiver. Suits UH050 and UH052.
D 2040 $64

## MICROPHONES

**DSE Speaker/ Microphone for Uniden PRS Handhelds**

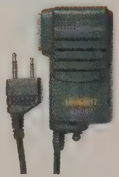
new for 2002

A compact speaker/mic that suits the Uniden UH-040/42 and UH-050/52 series handheld transceivers.
D 2042 $48.60

**Uniden Heavy Duty Speaker/ Microphone**

A heavy-duty speaker/mic that suits the Uniden UH-040/042 and UH-050/052 series handheld UHF CB transceivers. Simply plugs into the sockets provided on the Uniden transceivers.
D 2037 $119
**Order Only**

**Uniden Speaker/ Microphone to suit UH-053, UH-056, UH-057**



Combines speaker and microphone in one slim unit, allowing the transceiver to be clipped to a belt or carried in a pocket. Features easy-to-use push-to-talk button.
D 2025 $39.50

**digitor Earpiece/Mic for UH040**

new for 2002

A lightweight clip-on microphone with an integral PTT (push-to-talk) switch and an attached earpiece, which suits the Uniden UH-040 and UH-042 handheld transceivers.
D 2044 $38.40

**Uniden HM-040 Earphone/ Microphone**

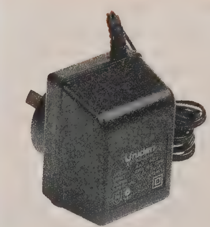
new for 2002

A lightweight earphone/mic that can be used with the Uniden UH-040/042XR and UH-050/052XR series handheld UHF CB transceivers.
D 2018 $68

**Uniden PRS VOX Headset**

A lightweight headset/mic that can be only be used with the Uniden UH-042XR and UH-052XR series handheld UHF CB transceivers. Plugs into the speaker/mic sockets on the transceiver, and uses the transceiver's internal circuitry for VOX operation exclusively.
D 2039 $119

## BATTERIES/CHARGERS

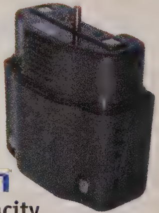


**Uniden NiCad Charger for UH-040**

A compact plugpack charger for use with the Uniden UH-040XR and UH-042XR handheld transceivers. Simply plugs into the transceiver, and provides an overnight charge cycle when the transceiver has been fitted with optional "AA" size NiCad batteries.
D 1832 $49.60

**Uniden Standard Nicad Battery to suit UH-054/HH940**

A replacement NiCad battery pack to suit the Uniden UH-054 handheld PRS radio or HH940 VHF Marine radio. Rated at 4.8V 450mAh.
D 1827 $68.40



**Uniden High Capacity UH-054A Battery Pack**

A high capacity 850mAh sealed NiCad battery pack designed primarily for the waterproof Uniden UH-054A handheld transceiver or HH940 VHF Marine radio. Provides up to 80% longer operating life compared to the standard battery provided with the transceiver. Rated at 4.8V, 850mAh.
D 1826 $124

**Uniden High Capacity UH-053 Battery Pack**

A long life 850mAh version designed for the UH-053 handheld PRS radio, directly replacing the NiCad battery supplied with the unit and enabling 40% more operating time. Uses existing AC plugpack charger supplied with the UH-053.
D 1825 $74.50

**Uniden**

## UH-011 Mobile PRS Radio

For quality communication and value for money, the Uniden UH-011 offers superb reliability and ease of operation. Serious users will appreciate its host of professional features, including a programmable duplex facility allowing the labelling of selected channels for repeater operation (when the unit is tuned to those channels again, duplex mode is automatically activated). The UH-011 boasts bright LED indicators for TX, RX, CA and duplex operation, as well as an LED bargraph meter for received signal strength and power output. Controls are designed for fast, efficient operation, and the UH-011 comes with mobile mounting hardware and quality microphone.
RFS approved.

**Specifications:**

Channels: 40. Frequency Range: 476.425 to 477.400MHz. Carrier Power: 5W max. Voltage: 13.8 DC nominal. Current Drain: receiver 600mA, transmitter 1.5A max. Sensitivity: 0.5uV (20db SINAD). Audio Output: 3W max. Dimensions: 155 x 53 x 189 mm (W.H.D.)
D 1766

Limited Stock **$298**

**Uniden**

## UH-012 Mobile UHF CB

new for 2002

Idealy suited to today's more compact cars, the uniden UH-012 provides an LED channel display for easier night-time viewing, and Open scanning facilities to assist locating active channels. Other features include a programmable Instant recall channel, Repeater access facility, and an adjustable squelch control.

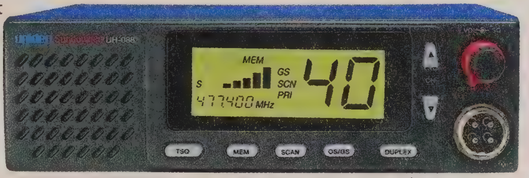
**Specifications:**

Frequency Range: 476.425 to 477.400MHz (40 Channels). Carrier power: 5W max. Voltage:13.8V DC nominal. Dimensions: 126 x 35 x 150mm (W.H.D).
D 1764

**$349**

**Uniden**

## UH-088 Scanning Mobile PRS Radio



This mobile PRS Radio provides fast channel scanning in a convenient DIN size that is easier to install in today's modern cars. It supports repeater operation, Open and Group scanning, push-button channel selection, and provides memory back-up for up to 2 weeks in case the DC power is disconnected. Together with the large backlit LCD screen and buttons plus the front-fire speaker of the UH-100 model listed below. The UH-088 also provides Channel Seek (where the receiver will continue scanning after stopping for 4 seconds on an active channel). RFS approved.

**Specifications:**

Frequency Range: 476.425 to 477.400MHz (40 channels). Carrier power: 5W max. Voltage: 13.8V DC nominal. Current drain: receiver 550mA max, transmitter 1.5A max. Sensitivity: 0.23uV (12dB SINAD). Audio output: 3W max. Dimensions: 173 x 52 x 145mm (W.H.D.).
D 1785

**$430**

**Uniden**

## UH-089 Scanning Mobile PRS Radio

new for 2002

This mobile unit not only offers 40 channels and 5 watts of transmission power but also comes in a super compact size. Plus it has an extra large backlit display screen and has hands free operation with the optional VOX headset. It has open scan and group scan, as well as 38 built-in CTCSS (Continuous Tone Coded Squelch System) codes that are user selectable.

**Specifications:**

Frequency Range: 476.425 to 477.400MHz (40 channels). Carrier power: 5W max. Voltage: 13.8V DC nominal. Current drain: receiver 730mA max, transmitter 1.35A max. Sensitivity: 0.23uV (12dB SINAD). Audio Output: 3W max. Dimensions: 145 x 45 x 140mm (W.H.D).
D 1786

**$549**

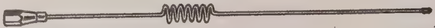
# PRS Antennas

### 1/4 Wave Mobile Antenna

An ultra-flexible 1/4 wave PRS antenna made from tough stainless steel wire in a protective plastic sheath. Install it on any standard 5/16" UHF antenna base. Approx. 135mm long.
D 4008
**$14.80**

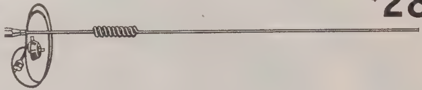
### 4.5dB Fibreglass Antenna

This 5/8 over 1/4 wave colinear antenna uses copper braid over a fibreglass rod to provide outstanding performance out of just 60cm of antenna. Fits any standard 5/16" UHF antenna base.
D 4013
**$28.70**



### 4.5dB Stainless-Steel Whip Antenna

A state-of-the-art stainless-steel whip antenna with a low angle-pattern and at least 4.5dB gain. All components are made of brass and stainless-steel for total protection against the elements, making it ideal for farming, industrial and heavy transport applications. Standard 5/16" female termination.
D 4006
**$28.70**

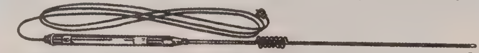


### PRS 4.5dB Antenna Pack

A highly flexible stainless-steel 4.5dB antenna with UHF base and lead. The whip is black powder coated and uses 2 hex screws to secure it firmly into its ferrule. Includes 3.6m of Mil-Spec Coax fitted with a PL-259 plug. Comes with Allen key and instructions.
D 4002
**$44**

### 6dB Gain "Mega Blaster" Antenna

Get high performance and maximum range from your UHF Personal Radio with the "Mega Blaster" antenna. It stands just 1.2 metres high and the multi-element, colinear design gives a solid 6dB gain. Mount it on your vehicle roof with a standard UHF base (D 4516) for best results. Can also be used as a scanning receiver antenna.
D 4007
**$74**

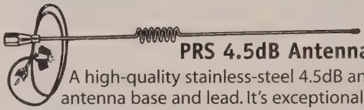


### 6.5dB Elevated Feed Mobile Antenna

This tough, elevated-feed, ground-independent UHF mobile antenna can be used in virtually any mounting position (provides up to 6.5dB gain when gutter mounted). It uses a stainless-steel whip with a black Dura-Coat finish and triple chrome-plated brass elevated feed choke. Comes with 3.6m of coax and PL-259 plug. Adjustable over the 470-490MHz range.
D 4023
**$98**

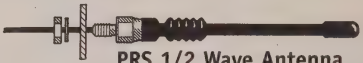
### UHF CB 1/2 Wave Handheld Antenna

A superb half-wave antenna (3dB gain) which is ideal for the latest handheld UHF CBs that use TNC sockets. It's approximately 26cm tall, highly flexible and has a quality TNC connector for simple screw-on convenience.
D 4202
**$39**



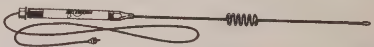
### PRS 4.5dB Antenna Pack

A high-quality stainless-steel 4.5dB antenna with a UHF antenna base and lead. It's exceptional value, durable and easy to install. Includes 3.6m of high-quality Mil-Spec Coax, fitted with a PL-259 plug and comes with instructions.
D 4000
**$44**



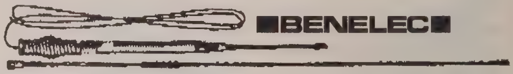
### PRS 1/2 Wave Antenna

A compact, unity-gain antenna that stands only 36cm high. Because it's ground-independent, you can mount it almost anywhere on your vehicle and get a clean, omni-directional transmission pattern. Ideal for vehicles and boats with fibreglass roofs. Chromed brass and flexible PVC construction with a 3.6 metre coax lead and PL-259 plug.
D 4020
**$44**



### 6.5dB Rugged Elevated Feed PRS Antenna

Ideal for applications such as 4WD, heavy transport, mining or industrial uses, this thick rugged antenna uses a 3.2mm diameter stainless-steel whip which will remain vertical at high vehicle speeds for optimum performance. Each antenna is pre-tuned for 465-485MHz operation, providing a low angle of radiation and minimum 5dB gain for longer range. Comes with 3.6m of coax cable and PL-259 plug.
D 4028
**$88**



### 3dB and 6dB Elevated-Feed Mobile Antenna

This rugged ground-independent mobile antenna is supplied with both 3dB and 6dB antennas so you can choose a shorter antenna for local coverage, or the longer antenna for maximum range. A quality spring is included to help damp out mobile vibration. The choke assembly uses a strong stainless-steel tube for longer life. Includes 5.0m low-loss coax cable and PL-259 plug.
D 4029
**$139**

## BASE ANTENNA

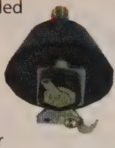
### 6dB Gain Base/Mobile Antenna

A compact 6dB gain co-linear ground-independent antenna designed for use on 4WD's, boats and base stations. Commonly seen mounted on the bull-bar of a 4WD vehicle, where it will provide excellent performance. It comes complete with a slim white colour fibreglass radome antenna, extra heavy-duty spring mount to help reduce vibration damage to the antenna, plus 3.6mm coax cable with connectors.
D 4098
**$159**

### 6dB Gain Base PRS Antenna

Get great range from your UHF with this high-gain (6dB), 2.4m high, omni-directional base-station antenna. The high quality fibreglass radome and aluminium tubing construction will ensure a long life. It's fitted with an N-type socket for minimum signal loss and it's great value!
D 4011
**$98**

### Light-Duty Base



Standard 5/16" 26 TPI threaded mount with black polypropylene plastic base. Suits loaded 1/4 wave and smaller CB antennas or small VHF whips. Mounting plate includes solder lugs for coax connection.
D 4056 **$13.60**

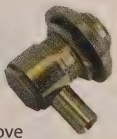
### PL-259 to 5/16" Adaptor

This simple adaptor allows connection of standard 5/16" thread antennas to SO-239 based antenna mounts (eg. D-4035).
D 4522 **$15.20**

### VHF/UHF Base

Waterproof design made especially for low loss VHF/UHF use. Cable enters through the bottom of the mount and terminates on the antenna thread.
D 4516 **$13.60**

### SO-239 Antenna Base



A waterproof coaxial SO-239 type base for use with PL-259 antennas. It's the ideal base when you often need to remove the antenna.
D 4035 **$19.60**

### Heavy-Duty Base

Standard 5/16" thread uses a stainless-steel rod and metal base plate for greater strength and reliability.
D 4313 **$28.60**

### Antenna Base With Lead

Standard 5/16" threaded base with 3m of quality coax and PL-259 plug attached. Mount it directly, or use it with our gutter mount, 'Z' brackets, boot mount, or mirror/roof-rack mount.
D 4055 **$24**

### UHF Antenna Base With Lead

A UHF 5/16" threaded base with 3.6 metres of RG-58C/U coaxial cable and plug attached. You can mount it directly, or use it with virtually any of our mounting brackets.

**PL-259 Plug Version**
D 4050 **$26.20**

**BNC Plug Version**
D 4051 **$26.20**

### Dipole Base And Lead Kit

Moulded 5/16" base with 3.6m coaxial lead and PL-259 plug. Fits onto gutter, boot or mirror mount. Patented.
D 4022 **$29.95**

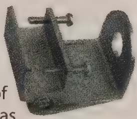
### Universal Mount Magnetic Base

Don't like to drill a hole in your new car? This quality magnetic mount can be used with compact antennas (150g max.) and comes with a Mylar anti-scratch surface, 3.6 metres of coax, and fitted PL-259 plug. Standard 5/16" thread.
D 4514 **$57.20**

### Heavy Duty Magnetic Mount

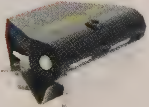
A very powerful magnetic mount with standard 5/16" thread for use with medium size CB whips. With 3.6m coax and fitted PL-259 plug.
D 4513 **$64.95**

### Heavy-Duty Gutter Mount



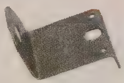
A heavy-duty Japanese gutter mount to suit most vehicles. Secures to the roof gutter with two screws & has variable angle adjustment.
D 5100 **Limited Stock** **$23.80**

### Low-Profile Gutter Mount



A sturdy gutter mount which reduces the total height of your antenna by mounting it slightly lower than a standard base. Secures to the roof gutter and has variable angle adjustment.
D 5110 **$27.70**

### "Z" Type Mounting Bracket



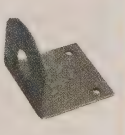
A sturdy bracket for attaching the antenna base to the boot lip. (The bolts/holes are concealed in the water channel under the boot lid).

| | | |
|---|---|---|
| Standard | D 5150 | $11.40 |
| Black Zinc | D 5152 | $10.70 |
| Stainless Steel | D 5153 | $13.40 |

### Angled "Z" Mounting Bracket

A quality stainless-steel "Z" bracket with an angled base for mounting on a vehicle with a sloping boot-lid. Designed to keep the antenna as close as possible to a vertical position.
R/Hand Rear D 5155
L/Hand Rear D 5156 **$13.40 ea**

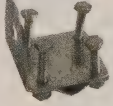
### "L" Style Mounting Bracket



A stainless-steel "L" shaped bracket for mounting an antenna base on the inside of the vehicle's boot or bonnet lip. It comes with two stainless-steel self-tapping screws.
D 5160 **$10.20**

### Mirror/Roof Rack Mount

Allows most standard CB antennas to be mounted on a truck style side-mirror or car roof-rack.
D 4512 **$15.60**

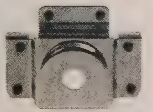


Stainless Steel
D 4519 **$22.90**

### Bull-Bar Antenna Mount

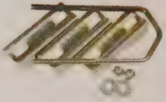
Designed for mounting small to medium antennas on a 4WD bull-bar. Uses a rugged black zinc-coated mounting plate with stainless-steel U-bolts and hardware for a long life.
D 5165 **$26**

### Boot/Bonnet Mount



Stainless-steel boot or bonnet mount. It grips the top edge of the boot lid with non-scratch bumpers. Stainless-steel screws secure it to the underside of the boot lid. Suits all but the biggest antennas.
D 4515 **$26**

### Parallel Antenna Mounting Bracket



Rugged mounting bracket assembly that allows a vertical antenna, with an aluminium tubing base, to be mounted onto a pole. Typical antennas will require two of these per installation.

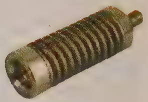
D 5170 **$13.60**

### Compact Stainless Steel CB Antenna Spring

A lightweight spring which reduces the damage caused to standard helical whips from common everyday hazards such as low carpark roofs and overhanging trees.

D 4500 **$25.70**

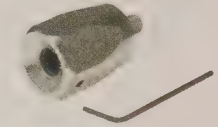
### Medium Stainless Steel CB Antenna Spring



Suitable for medium to large antennas with a standard 5/16" thread fitting. Stainless steel construction ensures a long life.

D 4509 **$32.50**

### Antenna Adaptor 1/2"- 5/16" thread



Adapts 1/2" female to 5/16" male thread.

new for 2002

D 4518 **$18.70**

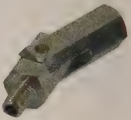
### Quick-Release CB Antenna Adaptor

Saves your antenna being stolen! This adaptor allows you to remove your antenna from its mount with a quick release button. Adjust antenna SWR after fitting.

D 4501 **$18.80**

**Limited Stock**

### Folding Snap-Down CB Antenna Adaptor

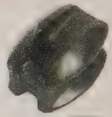


Standard 5/16" threads. Allows CB and similar antennas to be folded down in car parks etc, without removal. Adjust antenna SWR after fitting.

D 4506 **$26.20**

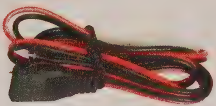
### Egg Insulators -

Tough egg insulators for antenna arrays and guy wires.



**Small nylon**
D 5300 **$1.45**

**Medium nylon**
D 5302 **$2.45**



### CB DC Power Leads

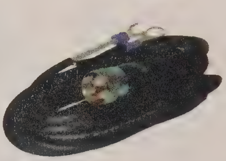
DC power leads, with in-line fuse holder, to suit a variety of old and new CBs. 3 Pin Suits early Midland and late Uniden CBs.

D 9001 **$14.95**

### 1m PL259 Coax Patch Lead

A handy coax patch lead with a moulded PL-259 plug on both ends. 1m long 50 ohm coax cable.

D 9010 **$14.40**



### 4m PL259 Coax Lead

4 metres of quality coaxial cable fitted with spade connectors on one end and a PL-259 plug on the other.

D 9012 **$12.90**

### 15m RG-58 Coax Lead

Ideal for connecting a 26MHz CB radio to an outdoor base station antenna. Quality RG-58C/U coax cable, with PL-259 plugs fitted at both ends.

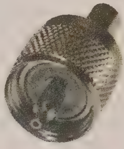
D 9013 **$34.95**

### 20m RG-213 Coax Lead

A 20m heavy-duty coax cable assembly with fitted PL-259 plugs. Ideal for longer runs when connecting a transceiver to an HF antenna mounted outdoors (ie. Amateur radio or CB applications).

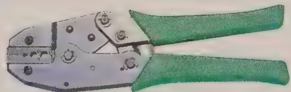
D 9016 **$84.95**

### PL259 Crimp Line Plug



50 ohm UHF plug to suit RG-58 cables. Crimp termination.

P 2313 **$4.45**



### Ratchet Coaxial Crimping Tool

Perfect for F, BNC, TNC, N, Teflon, Thinnet PVC and Fibre-Optic Connectors. Has an accurate ratchet drive and double jaws for single-action crimping.

T 3537 **$65.80**

### PL259 Solder Line Plug

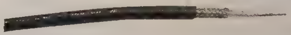
50 ohm UHF plug to suit RG-58 cables. Solder termination.

P 2311 **$4.95**

### PL259 Solder Line Plug

50 ohm UHF plug to suit RG-213 cables. Solder termination.

P 2310 **$5.95**



### 50 Ohm RG-58C/U Coaxial Cable

Commercial grade 50 ohm coax. Complies with Mil Spec MIL-C-17D. Ideal for mobile installations due to its small 5mm OD size. Can also be used outdoors over long periods due to its UV resistant PVC outer sheath.

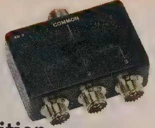
W 2092 **$1.95/m**

### 50 Ohm RG-213/U Coaxial Cable

A 10mm diameter, low loss 50 ohm cable for HF and VHF/UHF applications. Complies with MIL-C-17D. Ideal for longer runs or high power operation.

W 2099 **$3.95/m**

## COAX SWITCHES



### 3 Position Coax Switch

For more than one antenna or CB, an easy-to-use slide switch makes antenna selection convenient. Handles up to 50W at 30MHz.

D 5206

**Limited Stock**

**$30.50**

### 2-Way Coax Switch

A heavy-duty, 2-way coax switch that's suitable for Amateur, CB or commercial applications. It has a diecast case and can handle up to 2KW P.E.P. or 1kW CW at 30MHz with less than 0.2dB insertion loss.

D 5200

**$57**

S20
COAXIAL SWITCH
REVEX

### Quality 2-Way Coax Switch

2 way 50 ohm coax switch suitable for HF and VHF applications. Has self-cleaning contact mechanism for trouble-free operation.

D 5208

**$98**

### 2-Way N-Type Coax Switch

The Revex S20N is a 50-ohm N-type coax switch designed for exacting use on frequencies up to 1500MHz. Has an insertion loss of less than 0.1dB at 1500MHz and uses a self-cleaning contact mechanism to ensure trouble-free operation. Max. power rating is 1kW PEP.

D 5202

**$133**

## BALUNS

### Toroidal Balun Kit

This kit contains a 50mm iron-powder toroid, heavy-gauge insulated winding wire and instructions. In a 1:1 52-ohm configuration, it can handle up to 2kW PEP with minimal insertion loss. Use it for antennas up to 30MHz, or RFI suppression on your hi-fi gear by wrapping as many turns of your speaker leads as will fit through the core.

D 5350

**$25.70**

### 1kW HF Antenna Balun

Use as a centre support for dipole or yagi antennas.

This 'T' shaped 1:1 balun has 52-ohm unbalanced input and 52-ohm balanced output. An SO-239 socket is mounted into the base of the balun for easy coax connection, RF input power handling is 1kW P.E.P. max and insertion loss is less than 1db. It can handle the entire HF band - 3 to 30MHz. RAK model BL-50A.

D 5310

**$82.70**

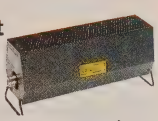
## DUMMY LOADS

### 15-Watt Dummy Load

A coax terminator with superb SWR characteristics. It consists of a heat-resisting ceramic resistor surrounded by an anodised aluminium heatsink, providing less than 1.2:1 SWR DC to 500MHz. It's fitted with a PL-259 plug, has an impedance of 50 ohms and it can handle 15W continuous or 100W for up to 30 seconds.

D 7025

**$67**



### 250-Watt Dummy Load

Ideal for testing high power transceivers and amplifiers, the Revex L250N 50 ohm dummy load is rated at 250W (50% duty cycle) and 1kW peak power. Its internal construction and low-loss N-type socket allow it to be used over the DC-500MHz range with very low SWR. Includes desk stands for more efficient convection cooling.

D 7028

**$229**

## MICROPHONES

### Universal Dynamic Mic

Designed for AM and SSB transceivers, this quality Japanese mic is supplied with a four-core lead and 4-pin plug that can be wired to suit most transceivers, even those with electronic switching. Nominal 600 ohms impedance.

D 2000

**$38**

### Noise Cancelling Mic

This quality Japanese mic uses two out-of-phase inserts to achieve its noise-cancelling ability. It has a quality PTT switch and coiled lead making it ideal for amateur or CB use. Impedance is 250-600 ohms and frequency response is 300-5000Hz.

D 2010

**$48**

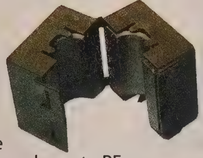
## TRIPLEXER

### HF/2m/70cm Triplexer CFX-514N

Ideal for use with multi-band rigs where a single coax cable may be required for multiple antennas. Inputs are 1.3-90MHz, 130-200MHz, and 380-500MHz with PL-259s on the HF/VHF bands (800W PEP max), and an N-connector on UHF (500W PEP max). Insertion loss is less than 0.25dB, and isolation is greater than 55dB.

D 3305

**$189**

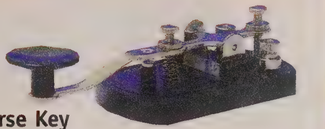


### Clamp-On Ferrite Suppressors

Suppresses HF-VHF RF interference in cables where it's not practical to cut the cable to insert a filter. Reduces noise radiated by computer leads, and for suppressing interference to phone cables & TVs from near-by transmitters. Just clamp over cable & suppressor acts as an RF choke. The more turns of the cable through the suppressor, the higher the series impedance to RF interference. Comes in 2 sizes with locking nylon housing. #43 ferrite material.

| | | |
|---|---|---|
| **For cables up to 6mm diameter** | D 5370 | **$10.70** |
| **For cables up to 13mm diameter** | D 5375 | **$15.90** |

## MORSE KEY



### Economy Morse Key

A bargain-priced morse key that's ideal for practicing or learning Morse Code. It's a great companion to our Morse Code Oscillator project found in the Funway series.

D 7105

**$14.80**

## SWR METERS

### Revex W540 VHF/UHF Power/SWR Meter

An SWR/power meter to suit Amateur, PRS and Commercial applications. Japanese construction with an all-metal case, large meter display, 140-525MHz coverage with less than 0.3dB insertion loss, and 4W, 20W & 200W power scales. Revex model W540.
D 1370

**$267**

### Revex W560N HF/VHF/UHF SWR/PWR Meter

Revex wide-band SWR meter, offering 2 inbuilt sensors for 1.8MHz to 535MHz coverage, 3 power levels (3W, 20W, 200W) and SWR. Uses an N-type socket for the VHF/UHF sensor to ensure minimal loss. Measures 120 x 80 x 85mm.
D 1375

**$418**

Customer order

### Revex W570 HF/VHF/UHF SWR/PWR Meter

The W570 provides switchable 1.6-160, 400-525, 700-1100, and 1240-1300MHz coverage, with measurement of 3 power levels (5, 20, 200W) and SWR. The external UHF sensor uses N-type sockets for minimal loss, and can be mounted remotely for easier cable connection to the meter. Measures 120 x 80 x 155 (including protrusions).
D 1377

**$499**

Customer order

## AMATEUR ANTENNAS

### 70cm Colinear Mobile

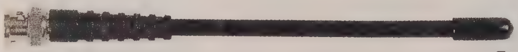
This mobile whip antenna provides 4dB gain across the 430-440MHz range and may be cut for higher frequency operation. Comes with standard 5/16" thread to suit most UHF bases.
D 4030

**$34**

### 2m 5/8 Wave Mobile

At 1.34 metres in length, this is an ideal choice for all 2 metre users. This very flexible mobile antenna has a long-life heat-shrink covering and provides approximately 3dB gain. Comes with a standard 5/16" female-threaded socket attached.
D 4207

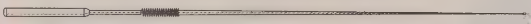
**$34**



### 'Rubber Duckie' 2m Handheld Antenna

This classic antenna is just 20cm long with a fast action BNC connector for attaching to your handheld. Robust, yet very flexible, and has a reinforced base for extra strength and reliability. Covers 144-148MHz.
D 4330

**$37**



### 2m 1/2 Wave Base Station Antenna

An Australian-made 3dB gain base station antenna that's 1.69m long and has a single section fibreglass reinforced polyester (FRP) radome for excellent all-weather operation. Covers the 144-148MHz range (<1.5:1 SWR) with a maximum power handling of 200W FM. Fitted with an SO-239 socket mounted into the base. 5 year warranty.
D 4820

**$84**

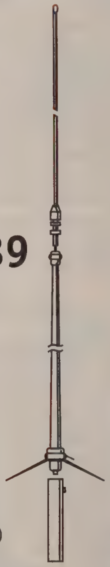
DIAMOND ANTENNA

### 2m/70cm X-50A

Frequency: 144-148MHz, 430-450HMz
Gain: 4.5dB on 2m, 7.2dB on 70cm
Max. power: 200W
Length: 1.7m, Max wind 60m/s
Type: 6/8 λ (2m), 3 x 5/8 λ(70cm)
Connector: SO-239 socket
D 4855

Customer order only

**$189**



DIAMOND ANTENNA

### 2m/70cm X-200A

Frequency: 144-148MHz, 430-450MHz
Gain: 6dB on 2m, 8dB on 70cm
Max. Power: 200W
Length: 2.5m Max wind 50m/s
Type: 2 x 5/8 λ (2m). 4 x 5/8 λ(70cm)
Connector: SO-239 socket
D 4860

Customer order only

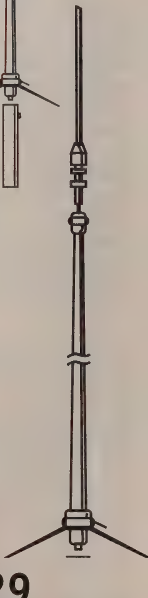
**$249**

DIAMOND ANTENNA

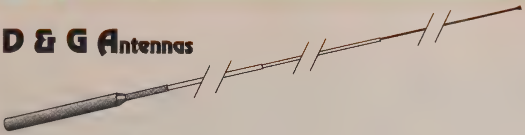
### 2m/70cm X-510A

Frequency: 144-148MHz, 433-450MHz
Gain: 8.3dB on 2m,11.7dB on 70cm
Max. Power: 200W
Length: 5.2m Max wind 40m/s
Type: 3 x 5/8 λ (2m), 8 x 5/8 λ(70cm)
Connector: SO-239 socket
D 4837

**$429**



**D & G Antennas**



### 6m 1/2 Wave Base Antenna

A rugged Australian-made vertical antenna designed to cover the 51 to 54MHz range, with minimum SWR around 53MHz. Built using high tensile TB1 grade aluminium, it's just 2.9m long with a sealed base section and 100W minimum power rating. Complete with mounting hardware.

D 4825 **$89**

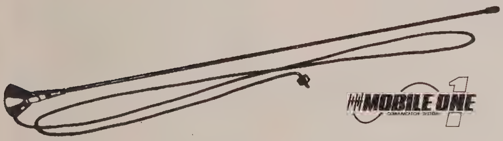
MOBILE ONE

### HF Antenna Systems

A range of helical HF amateur mobile antennas designed for New Zealand conditions. Simply install a base and attach the whip according to the band you require. Each whip is approximately 1.6m long, appropriately loaded, and features adjustable tuning. Maximum power handling is 200 watts. (Recommended base: 5/16˝ heavy duty. D 4313)

| | | | |
|---|---|---|---|
| D 4316 | 10m Band, 29MHz | D 4311 | 40m Band, 7MHz |
| D 4314 | 15m Band, 21 MHz | D 4310 | 80m Band, 3.5MHz |
| D 4312 | 20m Band, 14MHz | | |

**$69.95 ea**



MOBILE ONE

### VHF/UHF Universal Antenna Kit

Exceptional value! This 520mm stainless-steel whip is ideal for mid-band VHF to UHF (approx. 120MHz to 500MHz). It comes with cutting chart and a 5/16" coaxially-fed antenna base which fits most mounts. Complete with 3.6m of quality RG58C/U coaxial cable and a PL-259 plug.

D 4025 **$37**

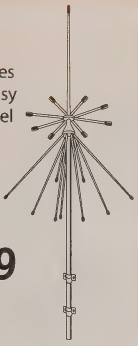
MOBILE ONE

### Cellfinder 7dB Gain GSM Mobile Antenna

Improve your mobile coverage with this high-performance 7dB gain antenna. Designed for use in country or fringe areas of the GSM network where cells are few or signals are weak, it's enclosed in a strong fibreglass radome and is supported by a heavy-duty stainless-steel spring that uses a 0.5 inch stud mount. The antenna's attached 3.6m of low-loss coax cable is terminated in an FME assembly, and an FME to mini UHF adaptor is supplied. Length 900mm, weight approx. 320g.

D 4250 **$147**

### D-130J Discone Antenna



Covers the frequency range 25-1300MHz and comes with mast-mounting hardware and instructions. Easy to assemble and install with extensive stainless-steel construction making it extremely durable. A wide frequency coverage means that it's ideal for scanning receivers, as well as transmitters up to 200W PEP for the 6m, 2m, 70cm and 23cm amateur bands. Uses SO-239 coax socket for easy coax connection.

D 4840 **$229**

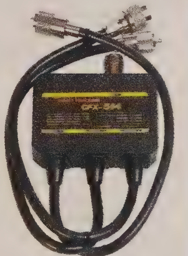
HUSTLER

### Rugged HF 5-Band Trap Vertical Antenna

The rugged 5BTV incorporates Hustler's exclusive trap design (25mm solid fibreglass formers, high tolerance trap covers and low loss windings) for accurate trap resonance with 1kW PEP power handling. Wide-band coverage is provided on the 10, 15, 20 and 40 bands (SWR typically 1.15:1 at resonance, < 2:1 SWR at band edges) with 80kHz bandwidth typical on 80m at less than 2:1 SWR. High strength aluminium and a 4mm (wall thickness) extra heavy-duty base section guarantee optimum mechanical stability. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike other antenna designs, the 5BTV can be fed with any length of 50-ohm coax cable.

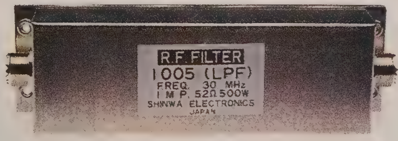
D 4920 **$469**

### HF/2m/70cm Triplexer CFX-514N



Ideal for use with multi-band rigs where a single coax cable may be required for multiple antennas. Inputs are 1.3-90MHz, 130-200MHz, and 380-500MHz with PL-259s on the HF/VHF bands (800W PEP max), and an N-connector on UHF (500W PEP max). Insertion loss is less than 0.25dB, and isolation is greater than 55dB.

D 3305 **$189**



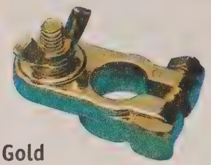
### Transmitter Low-Pass Filter

Helps reduce TV interference caused by HF transmitters. Ideal for CBers and amateurs, it handles up to 500W PEP. Cut-off is around 30MHz with a maximum attenuation of approximately 50dB at 100MHz and insertion loss of only 0.7dB.

D 7080 **$62.30**

## GOLD DC POWER CONNECTORS

**When you're really serious about a quality DC power installation for high-end vehicle or marine sound systems, solar power wiring, or high-power transceivers, our cost-effective gold-plated hardware and low-loss OFC power cables will help give a professional result. Gold-plated hardware minimises contact resistance, reduces chances of corrosion, and maintains the appearance of your system. Our OFC DC power cables (p.295) use fine copper strands & quality PVC insulation to ensure flexibility for easier installation in tight spaces as well as greater vibration resistance.**

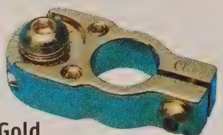


### Gold Battery Terminals

Gold-plated vehicle battery terminals with 7mm thread butterfly-nut & recessed bolt head for quick connection of DC cables with fitted lugs.

| | |
|---|---|
| **Positive Terminal** | D 6100 |
| **Negative Terminal** | D 6102 |

$12.95 ea



### Gold Battery Terminals

Gold-plated battery terminals with a hex head screw for connection of heavy DC cables with lugs fitted, as well as recessed direct inlets for two 8GA cables.

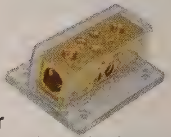
| | |
|---|---|
| **Positive Terminal** | D 6104 |
| **Negative Terminal** | D 6106 |

$12.95 ea

### Gold Power Lugs

Large gold-plated "lugs" for fitting to a thick DC power cable to allow connection to a battery terminal. Uses large Allen screw to securely grip the cable.

| | |
|---|---|
| **Suits 8GA cable**<br>D 6112 | $8.95 |
| **Suits 4GA cable**<br>D 6114 | $9.95 |



### Power Distribution Block

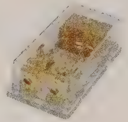
Gold-plated heavy-duty distribution block for feeding DC to a number of devices. Has large 4GA inlet and outlet, plus four smaller 8GA outlets. Includes mounting plate and clear plastic cover. Size is 68 x 52 x 34mm (LWH) including plate and cover.

D 6120 $12.95

### Gold In-Line Fuseholder

Heavy-duty 5AG fuseholder with low resistance gold-plated contacts and dual gasket seals for the fuse area. Suits both 8GA and 4GA cables, and has inbuilt mounting bracket for easy installation.

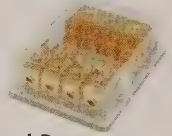
D 6118 $12.95



### Fused Power Distribution Block

Gold-plated heavy-duty power distribution block with three 4GA inputs and two 8GA fused outlets. Fuseholders use 5AG size fuses (not supplied). Size is 101 x 53 x 33mm (LWH) including plate and cover.

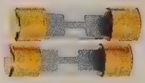
D 6122 $24.95



### Fused Power Distribution Block

Gold-plated heavy-duty power distribution block with three 4GA inputs and four 8GA fused outlets. Fuseholders use 5AG size fuses (not supplied). Size is 104 x 77 x 33mm (LWH) including plate and cover.

D 6124 $34.95



### 5AG Gold Fuses

Pack of 2, 5AG size DC fuses with gold-plated end caps for lower contact resistance. Available in a range of current ratings.

| | |
|---|---|
| **20A fuses** | D 6132 |
| **30A fuses** | D 6134 |
| **40A fuses** | D 6136 |
| **50A fuses** | D 6137 |
| **60A fuses** | D 6138 |

$4.75 pk

## POWER SUPPLIES

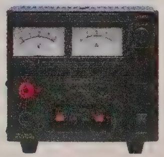
### Benchtop DC Power Supplies

These are ideal for those needing a low noise regulated DC power source. DC output is from 3-15V with front panel metering, high current banana-style and low-current output connections for extra flexibility. Internal heatsinks and thermally-switched fans provide cooling without protrusions in the metal cases (which are just 320 x 150 x 145mm). Specially modified for reliable long-term operation, they also provide extensive overload protection through dissipation limiting circuitry for the pass transistors, AC mains circuit breakers, transformer thermal fuses and fused auxiliary secondary windings.

### 3-15V 13 Amp Power Supply

Provides up to 13A continuous at 15V (lower current at lower voltages).

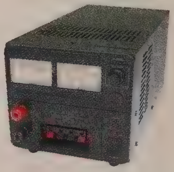
D 3812 $268



### 3-15V 25 Amp Power Supply

Provides up to 25A continuous at 15V (lower current at lower voltages).

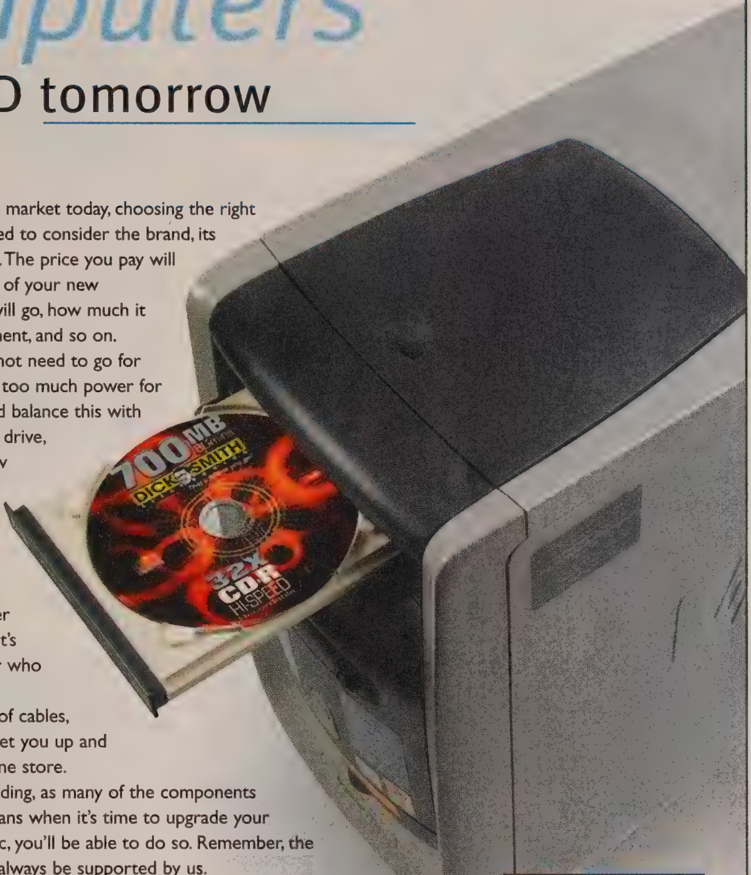
D 3800 $358



For more specifications on Power Supplies see Page 154-165

# computers

## here today AND tomorrow



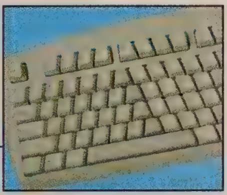
With the range of computers available on the market today, choosing the right one for you can be a difficult task. You will need to consider the brand, its specifications, and most importantly, the price. The price you pay will ultimately determine the overall performance of your new computer – how long it will last, how fast it will go, how much it can be upgraded to future-proof your investment, and so on.

For the first time computer buyers, you may not need to go for the most powerful computer as it could have too much power for your initial requirements. However, you should balance this with any future requirements you may have – hard drive, memory, processor, DVD Drive, etc. Most new computers today can run standard home and business software. Many of ours include a wide range of software already installed.

After sales support and service is very important. Be aware, you don't get caught later with a 'here today, gone tomorrow' supplier! It's often better to stick with a reputable supplier who always support the brands they sell.

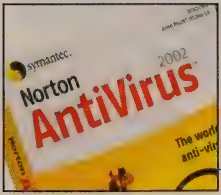
Dick Smith Electronics also has a huge range of cables, connectors, components and accessories to get you up and running. You can get everything you need in one store.

PC compatible computers are great for upgrading, as many of the components used comply with industry standards. This means when it's time to upgrade your memory, graphics, monitor, printer, scanner, etc, you'll be able to do so. Remember, the PC you buy from Dick Smith Electronics will always be supported by us.

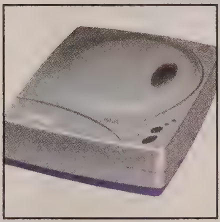


accessories

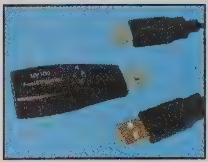
cables *and* connectors



software for business, home *and* pleasure



hardware



Microsoft Kodak EPSON Canon EVEREX hp invent

# Printers

## EPSON C20UX Inkjet Printer

The EPSON Stylus C20 is an affordable colour printer, boasting all the latest EPSON technologies for the first time buyer.

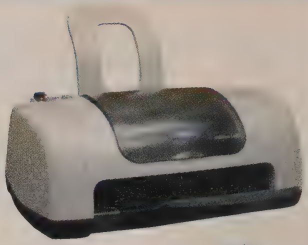
XP0284 **$193**

up to 720 dpi
Up to 6.5ppm

## EPSON C40UX Inkjet Printer

An affordable 4-colour printer, boasting all the latest Epson technologies for the home user. Offers excellent black and colour printing, combining 1440dpi resolution and much more...

XP0285 **$271**



Up to 1400 x 720
Up to 8ppm

Mac Compatible

## hp invent Deskjet 656C Inkjet Printer

Add colours to your life with this easy and affordable colour printer.

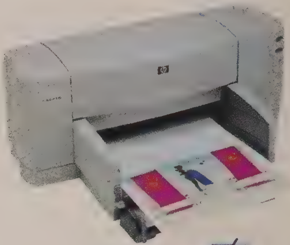
XP0295 **$193**

Up to 600 x 300
Up to 6ppm

## hp invent Deskjet 845C Inkjet Printer

Step up to HP's photo-quality printer that gives you true-to-original colours.

XP0296 **$243**



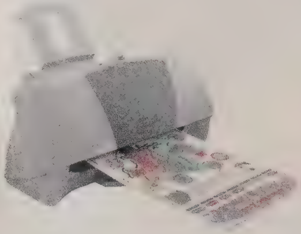
Up to 1200 x 600
Up to 8ppm

Mac Compatible

## Canon S100SP Inkjet Printer

Enjoy high quality printing with the S100SP. Using 720 x 360 dpi resolution and Canon's Drop Modulation Technology, it runs out high definition, rich black text and stunning colour images.

XP0308 **$188**



Up to 720 x 360
Up to 5ppm

## Canon S200SP Inkjet Printer

The compact Canon S200SP Colour Bubble Jet Printer is one of the world's most affordable performance printers, giving you the ability to print high-quality, laser-sharp letters and reports and spectacular colour photos and graphics.

XP0307 **$224**

Up to 2880 x 720
Up to 5ppm

Mac Compatible

## Canon S820 Inkjet Printer

Imagine brilliant 4" x 6" borderless photos in about 60 seconds. All with the ability to retain their vibrancy and colour for approximately 25 years-and all right from your desktop. The Canon S820 Photo Printer delivers it all and so much more...

XP0310 **$899**

Up to 2400 x 1200
Up to 4ppm

Mac Compatible

## Canon S6300 Inkjet Printer

Enjoy wide format printing - anything from 4" x 6" to full A3+ in size - with the S6300 printer as well as stunning output with a combination of 2400 x 1200 dpi, Microfine Droplet technology and High Colour inks.

XP0313 **$1199**

Up to 2400 x 1200
Up to 4ppm

Mac Compatible

## DSE Cable Printer 25M-Cent 2M

Parallel. 2m.
X 8614 **$19.85**

## DSE Printer Cable 25M-Cent 5M

Parallel. 5m.
X 8619 **$35.70**

EPSON

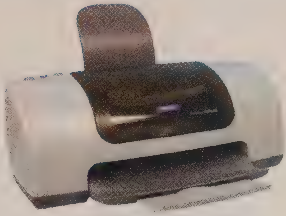
## C60 Inkjet Printer

The speedy, reliable inkjet printer with up to 2880 dpi - for Home and SOHO users.
XP0301 **$353**

Up to 2880 x 720
Up to 12ppm
USB Mac Compatible

EPSON

## Stylus Photo 810 Printer



Great quality printing for all applications from an affordable and easy-to-use home printer. Precisely what the EPSON STYLUS Photo 810 delivers.
XP0292 **$497**

Up to 2880 x 720
Up to 12ppm
USB Mac Compatible

hp invent

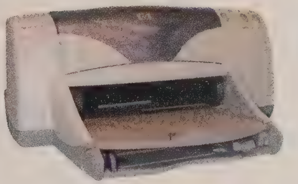
## Deskjet 948C Inkjet Printer

Explore your creativity and print photos easily with HP's premium photo-quality colour printer.
XP0297 **$333**

Up to 2400 x 1200
Up to 12ppm
USB Mac Compatible

hp invent

## Deskjet 960C Inkjet Printer



HP's smart photo-quality colour printer that saves you time and money.
XP0298 **$607**

Up to 2400 x 1200
Up to 15ppm
USB Mac Compatible

Canon

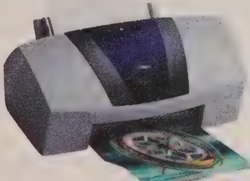
## S520 Inkjet Printer

The Canon S520 Color Bubble Jet printer gives you the power to print office documents and Web pages, plus full colour photos at incredible speeds. Just superb out of box performance with fast print speeds and exceptional photo quality output.
XP0309 **$457**

Up to 2400 x 1200
Up to 5ppm
USB Mac Compatible

Canon

## S750 Inkjet Printer

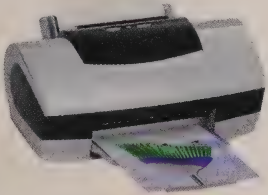


The new S750 printer gives outstanding print results, even in high-speed draft and default mode with the introduction of Canon's Advanced MicroFine Droplet Technology^ and Advanced Precision Colour Distribution Technology.
XP0312 **$604**

Up to 2400 x 1200
Up to 20ppm
USB Mac Compatible

Canon

## S900 Inkjet Printer



The S900 Photo Printer delivers truly amazing quality at unheard-of speeds. Push the print button and, in just about 37 seconds, you'll have a spectacular 4" x 6" borderless print-rivaling those you get from a professional photo lab-in your hands.
XP0314 **$1058**

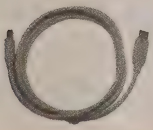
Up to 2400 x 1200
Up to 4ppm
USB Mac Compatible

Canon

## S9000 A3 Inkjet Printer

The S9000 is the wide-format photo printer you've been waiting for - precision equipment for your desktop that enables you to print truly remarkable photos that rival those from a professional lab, from 4" x 6" up to 13" x 19".
XP0315 **$1236**

Up to 2400 x 1200
Up to 6ppm
USB Mac Compatible



DSE

## USB Printer Lead

1m A Male to B Male.
XH3225 **$18$^{20}$**

DSE

## USB Printer Lead

3m A Male to B Male.
XH3226 **$21$^{60}$**

## INKJET COMPATIBILITY CHART

## EPSON

EPSON
S020187

Cartridge

Printer

| DSE Code | X 3197 | X 3166 | X 4781 | X 4782 | X 6495 | X 6494 | XM0459 | X 7799 | X 4329 | X 4328 | X 8318 | X 7397 | XM0318 | XH2053 | XH2054 | XH2055 | XM0237 | XM0462 | XM0190 | XM0191 | XM0114 | XM0118 | XM0115 | XM0131 | XM0130 | XM0463 | XM0464 | XM0238 | XM0239 | XM0164 | XM0165 | XM0392 | XM0393 | XM0402 | XM0403 | XM0451 | XM0465 | XM0467 | XM0466 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Epson Code | S02002590 | S020031 | S02003490 | S02003690 | S02004790 | S02004990 | S020062 | S02008990 | S02009390 | S02009790 | S02010890 | S02011090 | S020118 | S02018790 | S02018990 | S02019190 | S02019390 | T00101191 | T003091 | T005091 | T007091 | T008091 | T009091 | T014091 | T013091 | T015091 | T016091 | T017091 | T018091 | T019091 | T020091 | T026091 | T027091 | T028091 | T029091 | T032190 | T032290 | T032390 | T032490 |
| STYLUS 400 - 800 - 1000 | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STYLUS 300 | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STYLUS Color - Pro - Pro XL / XL+ | | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STYLUS Color - Pro - Pro XL | | | | 🔴🔵🟡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STYLUS 820 - IIs - II - 200 - COLOR 200 | | | | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STYLUS 820 - 1500 - Color II - IIs - Pro XL | | | | | | 🔴🔵🟡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STYLUS 820 - IIs - II - 1500 | | | | | | | 🔴🔵🟡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STYLUS 400 - 600 - 800 - 850 - 860 -1520 | | | | | | | | 🔴🔵🟡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STYLUS 400 - 500 - 600 - PHOTO - PHOTO 700 - PHOTO EX | | | | | | | | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STYLUS 200 - Color 200 - Color 500 | | | | | | | | | | 🔴🔵🟡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STYLUS 800 - 850 - 860 - 1520 | | | | | | | | | | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STYLUS PHOTO - PHOTO 700 - PHOTO EX | | | | | | | | | | | | 🔴🔵🟡 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STYLUS 3000 | | | | | | | | | | | | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STYLUS 440 - 460 - 640 - 660 - 670 - PHOTO 1200 - PHOTO 720 | | | | | | | | | | | | | | ● | | | | | | | | | | | | | | | | | | | | | | | | | |
| STYLUS 740 - 760 - 1160 | | | | | | | | | | | | | | | ● | | | | | | | | | | | | | | | | | | | | | | | | |
| STYLUS 440 - 460 - 640 - 660 - 670 - 740 - 760 - 1160 | | | | | | | | | | | | | | | | 🔴🔵🟡 | | | | | | | | | | | | | | | | | | | | | | | |
| STYLUS PHOTO 720 | | | | | | | | | | | | | | | | | 🔴🔵🟡 | | | | | | | | | | | | | | | | | | | | | | |
| STYLUS 1200 | | | | | | | | | | | | | | | | | | 🔴🔵🟡 | | | | | | | | | | | | | | | | | | | | | |
| STYLUS 900 - 980 | | | | | | | | | | | | | | | | | | | ● | 🔴🔵🟡 | | | | | | | | | | | | | | | | | | | |
| STYLUS PHOTO 870 - 890 - 895 -1270 - 1290 | | | | | | | | | | | | | | | | | | | | | ● | | | | | | | | | | | | | | | | | | |
| STYLUS PHOTO 870 - 890 - 895 | | | | | | | | | | | | | | | | | | | | | | 🔴🔵🟡 | | | | | | | | | | | | | | | | | |
| STYLUS PHOTO 1270 - 1290 | | | | | | | | | | | | | | | | | | | | | | | 🔴🔵🟡 | | | | | | | | | | | | | | | | |
| STYLUS 480 - 580 - C20UX - C40UX | | | | | | | | | | | | | | | | | | | | | | | | 🔴🔵🟡 | ● | | | | | | | | | | | | | | |
| STYLUS PHOTO 2000P | | | | | | | | | | | | | | | | | | | | | | | | | | ● | 🔴🔵🟡 | | | | | | | | | | | | |
| STYLUS 680 | | | | | | | | | | | | | | | | | | | | | | | | | | | | ● | 🔴🔵🟡 | | | | | | | | | | |
| STYLUS 880 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ● | 🔴🔵🟡 | | | | | | | | |
| STYLUS PHOTO 810 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ● | 🔴🔵🟡 | | | | | | |
| STYLUS C60 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ● | 🔴🔵🟡 | | | | |
| STYLUS C70 - C80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ● | 🔵 | 🔴 | 🟡 |

## Canon

Canon
Canon
BCI-21
Color

Printer

| DSE Code | X 3233 | X 5586 | XH2008 | X 2193 | X 5320 | XM0267 | XM0344 | X 5489 | X 5852 | X 6528 | XM0026 | XM0025 | X 5718 | X 5724 | X 5719 | XM0408 | XM0409 | X 5707 | X 5708 | XM0410 | XM0411 | XM0173 | XM0174 | XM0175 | XM0176 | XM0177 | XM0166 | XM0168 | XM0167 | XM0170 | XM0171 | XM0172 | XM0169 | XM0192 | XM0193 | XM0194 | XM0196 | XM0197 | XM0195 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canon Code | BC-01 | BC-02 | BC-03 | BC-05 | BC-10 | BC-11e | BC-12e | BC-20 | BC-21e | BC-22e | BC-23 | BC-29f | BCI-10BK | BCI-11BK | BCI-11C | BCI-12PBK | BCI-12PC | BCI-21BK | BCI-21C | BCI-24BK | BCI-24C | BC-30e | BC-31e | BC-32e | BC-33e | BC-34e | BCI-3eBK | BCI-3eC | BCI-3eM | BCI-3ePBK | BCI-3ePC | BCI-3ePM | BCI-3eY | BCI-6BK | BCI-6C | BCI-6M | BCI-6PC | BCI-6PM | BCI-6Y |
| BJ10 - 20 | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BJ200 - Bj230 | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BJC210 - BJC240 | | ● | | 🔴🔵🟡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BJC210SP - 255SP - 265SP - 1000SP | | | ● | 🔴🔵🟡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bj30 - BJC50 - 55 - 70 - 80 - 85 | | | | | 🅟 | Ⓟ | | | | | | | ● | ● | 🔴🔵🟡 | | | | | | | | | | | | | | | | | | | | | | | | |
| BJC85 - BJC55 | | | | | | | Ⓟ | | | | | | | | | ● | 🔴🔵🟡 | | | | | | | | | | | | | | | | | | | | | | |
| BJC2000 series - 4200 - 4300 - 4310 - 4550 - 4650 | | | | | | | | ● | Ⓟ | Ⓟ | | 🔴🔵🟡 | | | | | | ● | 🔴🔵🟡 | | | | | | | | | | | | | | | | | | | | |
| BJC4000 - 4100 - 5500 - S100SP | | | | | | | | ● | Ⓟ | | | 🔴🔵🟡 | | | | | | ● | 🔴🔵🟡 | | | | | | | | | | | | | | | | | | | | |
| BJC5000 - 5100 | | | | | | | | | Ⓟ | Ⓟ | ● | | | | | | | ● | 🔴🔵🟡 | | | | | | | | | | | | | | | | | | | | |
| S200SP - S300 | | | | | | | | | | | | | | | | | | | | ● | 🔴🔵🟡 | | | | | | | | | | | | | | | | | | |
| BJC3000 - S400 - S400SP - MPC100 | | | | | | | | | | | | | | | | | | | | | | 🅟 | | | Ⓟ | Ⓟ | ● | 🔵 | 🔴 | ● | 🔵 | 🔴 | 🟡 | | | | | | |
| S520 - S600 - S750 - S6300 | | | | | | | | | | | | | | | | | | | | | | | | | | | ● | 🔵 | 🔴 | | | | 🟡 | | | | | | |
| BJC6000 - 6200 - 6500 - S450 - S4500 | | | | | | | | | | | | | | | | | | | | | | 🅟 | Ⓟ | Ⓟ | | | ● | 🔵 | 🔴 | ● | 🔵 | 🔴 | 🟡 | | | | | | |
| S800 series - S900 - S9000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ● | 🔵 | 🔴 | 🔵 | 🔴 | 🟡 |

Ⓟ Colour Printhead

🅟 Black Printhead

## INKJET

| Printer | 51626A (26) | 51625A (25) | 51633M (33) | 51629A (29) | 51649A (49) | 51641A (41) | C1823D (23) | C6615A (15) | C6614A (20) | 51645A (45) | C1816A (16) | C6578D (78) | C6625A (17) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DSE Code | X 0743 | X 0744 | X 1039 | X 6532 | X 6566 | X 6564 | XM0027 | XM0061 | XM0064 | X 6565 | X 4522 | XM0084 | XM0141 |
| DJ - DJ Plus - DW500 - Dw520 - Officejet LX | ● | | | | | | | | | | | | |
| DJ Portable - 320 - 340 | | ◉ | ● | | | | | | | | | | |
| DJ350cbi | | | | | ◉ | | | | | | ◉ | | |
| DJ 400 - 420 - 500C - 540 - 550C - 560C | ● | ◉ | | | | | | | | | | | |
| DJ 610C - 656C | | | | | ◉ | | | | ● | | | | |
| DJ 640C | | | | | ◉ | | | | ● | | ◉ | | |
| DJ 600 - 660C - 670C - OfficeJet 590 - 630 - 635 - 710 - 725 | | | | ● | ◉ | | | | | | | | |
| DJ 690C - 692C - 695C | | | | ● | ◉ | | | | | | ◉ | | |
| DJ 810C - PSC500 | | | | | | | ◉ | ● | | | | | |
| DJ 820Cxi - 850C - 870cxi - 1000cxi - OfficeJet Pro 1150C | | | | | | ◉ | | | | ● | | | |
| DJ 840C - 845C | | | | | | | | ● | | | | | ◉ |
| DJ 710 - 720 - 830 - 880C - 890C - 895C | | | | | | | ◉ | | | ● | | | |
| OfficeJet 1170 - 1175 - R45 - R65 - T45 - T65 | | | | | | | ◉ | | | ● | | | |
| DJ 948C - PSC750 - V40 | | | | | | | | ● | | | | ◉ | |
| DJ 930C - 950C - 970C - 990CXI - 1220C - Officejet G55 - G85 - K80 | | | | | | | | | | ● | | ◉ | |
| DJ 1120C - 1125C | | | | | | | ◉ | | | ● | | | |

## LASERJET

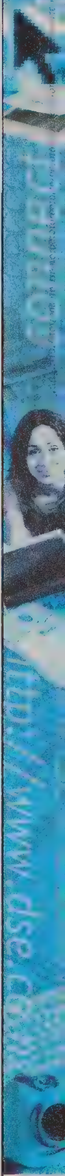
| HP Code | 92274A | C3906A | 92275A | C3903A | 92298A | C3909A | C4092A | C4127X | C3900A | C4129X | C4096A | C8061A | C7115A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Page capacity (thousand) | 3.3K | 2.5K | 3.5K | 4K | 6.5K | 15K | 2.5K | 10K | 8.1K | 10K | 5K | 6K | 2.5K |
| DSE Code | X 0971 | X 1079 | X 1244 | X 3558 | X 9415 | XH2002 | XM0007 | XM0052 | XM0055 | XM0096 | XM0024 | XM0379 | XM1001 |
| LJ 4l/4ml/4p/4mp | ● | | | | | | | | | | | | |
| LJ 5l/6l/3100 series | | ● | | | | | | | | | | | |
| LJ series ll/lid/lip/lip+/lll/llld/lllp | | | ● | | | | | | | | | | |
| LJ 5p/5mp/6p/6mp | | | | ● | | | | | | | | | |
| LJ 4/4m/4+/4m+ | | | | | ● | | | | | | | | |
| LJ 5si/si mx/si nx/8000 series | | | | | | ● | | | | | | | |
| LJ 1100 series - 3200 | | | | | | | ● | | | | | | |
| LJ 4000 series | | | | | | | | ● | | | | | |
| LJ 4v/4mv | | | | | | | | | ● | | | | |
| LJ 5000 series | | | | | | | | | | ● | | | |
| LJ 2100 series | | | | | | | | | | | ● | | |
| LJ 4100 series | | | | | | | | | | | | ● | |
| LJ 1000 - 1200 series - 3300 series | | | | | | | | | | | | | ● |

calidad®
INKJET
CARTRIDGES & REFILLERS

## Calidad replacement cartridges and Refills

| Refills | Compatible with | Suits | DSE code |
|---|---|---|---|
| 930-BK | Canon BC01/02 | BJ5 / 10 / 15 / 20 - BJC 210 / 255 / 265 / 1000 | X 5878 |
| 943-BK | Canon BC-03 | BCJ 210 / 255 / 265 | XH2039 |
| 942-TRIO | Canon BC-05 | BJC 150 /210 / 240 / 250 / 255 / 265 / 1000 | XM0032 |
| 938-BK | Canon BC20/BC23 | BJC 4000 / 5000 series | X 5879 |
| 937-BK | Canon BCI-21 Bk | BCJ 2000 / 4000 / 5000 series | X 5880 |
| 937-TRIO | Canon BCI-21 Col | BCJ 2000 / 4000 / 5000 series | XM0031 |
| 949-BK2 | Canon BCI-3eBK | S400,450, 500, 600, 630 | XM0400 |
| 949-TRIO2 | Canon BCI-3eC/M/Y | S400, 450, 500, 600, 630 | XM0401 |
| 966-BK | Epson 34 / 47 / 93 / 108 / 116 / 187 / 189 / T003 / T013 | Stylus Colour 200 / 300 / 400 / 500 / 600 / 700 / 800 / 900 (all series except 680 / 870) | XM0043 |
| 966-TRIO | Epson 36 / 49 / 66 / 89 / 87 / 97 / 191 / T005 | Stylus Colour 200 / 300 / 400 / 500 / 600 / 700 / 800 / 900 (all series except 680 / 870) | XM0042 |
| 916-TRIO | HP 51625 / 51649 | DJ 300 / 400 / 600 series, 540 / 550 / OJ 500 / 600 / 700 series | XM0044 |
| 916-BK3 | HP 51626 / 51629 / 51633 | DJ 350 / 610 / 400 / 500 series, OJ 500/ 600 / 700 series | XM0095 |
| 918-Bk | HP 51645A | Deskjet 700 / 800 / 900 series - 1000 / 1120 - Officejet 1100 / g / k / r / t series | X 3439 |
| 918-TRIO | HP 51641 / C6578 / 51641 | DJ 700 / 800 / 1000 series, OJ 1170 / 1150 / G / K / R / T series | XM0045 |

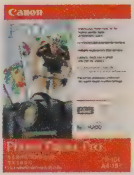
| Cartridges | Compatible with | Suits | DSE code |
|---|---|---|---|
| 936-BK | Canon BCI-21 BK | BJC 2000 / 4000 / 5000 series | X 5853 |
| 967-BK9 | Epson SO20108 / SO20189 | Stylus Colour 740 / 760 / 800 / 850 / 860 / 1160 / 1520 | XM0019 |
| 968-COL | Epson 89 / 93 / 187 / 191 | Stylus Colour 400 / 440 / 460 / 600 / 640 / 660 / 670 / 740 / 760 / 800 / 1160 / 1520 | XM0012 |
| 968-BK | Epson SO20093 / SO20187 | Stylus 200 / 400 / 440 / 460 / 500 / 600 / 640 / 660 / 670 / Photo / 700 / 710 / EX | XM0020 |
| 975-BK | Epson TO13 | Stylus Colour 480 / 580 | XM0155 |
| 975-COL | Epson TO14 | Stylus Colour 480 / 580 | XM0156 |
| 978-BK | Epson T017 | Stylus Color 680 / 685 / 777 | XM0394 |
| 978-COL | Epson T018 | Stylus Color 680 / 685 / 777 | XM0395 |
| 800-BK | HP 26 | Deskjet 400/500 series and DJ Plus | XM0350 |
| 801-BK | HP 29 | Deskjet 600 series and OJ 500 / 600 / 700 series | XM0349 |
| 802-BK | HP 20 | Deskjet 610 / 612 / 630 / 640 / 648 | XM0348 |



# Paper

## CANON PAPER

**Canon PR101 Photo Paper**



15 sheets of A4 high-gloss photo paper for truly amazing photos.
XM5334 $37

**Canon GP301 A4 Glossy Paper**

20 sheets of A4 165gsm glossy paper for vibrant photos.
ZM5007 $31.20

**Canon HR101II A4 High Resolution Paper**

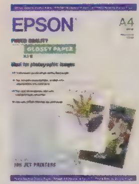
50 sheets of A4 110gsm high resolution paper for great printouts.
XM5009 $23.40

**Canon TR201 A4 Transfer Sheets**

10 A4 T-shirt transfer sheets. Easy to use. Cold peel. Washable. Colour fast.
XM5010 $43.80

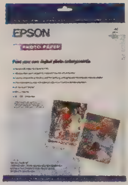
## EPSON PAPER

**EPSON Paper S041061 Matte Finish A4**



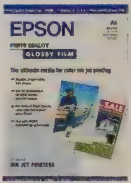
100 sheets of A4 photo quality paper with a matte finish for high quality photo printouts.
XM5235 $39.95

**EPSON Paper S041140 Photo A4**



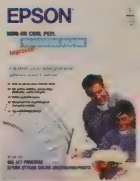
20 sheets of EPSON A4 photo paper for high quality photo printouts.
XM5246 $30.60

**EPSON Paper S041107 Photo A6**



10 sheets of EPSON A6 photo quality glossy film for superb photo printouts.
XM5267 $14.95

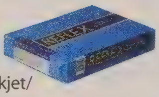
**EPSON Paper S041154 Transfer A4**



10 sheets of iron-on transfer paper for really cool T-shirts.
XM5266 $39.95

## GENERAL

**Reflex A4 Paper**



500 sheets. Suitable for Inkjet/ Laser printers, copiers, and faxes.
X 2682 $8.90

**Canon A4 Copier/ Laser Paper**

Ideal for Copier, Laser printer, Inkjet printer and plain paper fax requirements.
XM7001 $7.20

## HEWLETT PACKARD PAPER

**hp invent Premium Inkjet Paper**

200 sheets of Premium quality A4 inkjet paper.
XM5238 $49.95

**hp invent Photo Glossy Paper A4**

20 sheets. This sturdy, stock is ideal for photo projects. Special paper coatings bring out the subtle details of your images and protect the ink from smudging.
F 3682 $29.95

**hp invent Semigloss A4**

25 sheets. Delivers great looking everyday photos with your printer's photo-printing mode.
XM5354 $19.95

## CD LABELLING

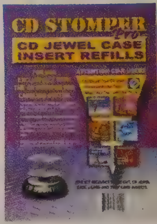
**CD labelling system with labels and software.**

This packaging includes: The CD Stomper Pro Applicator; software for PC & Mac; over 1200 pre-designed backgrounds, photos, and clip art, templates for all major applications; 50 die-cut adhesive CD labels (118mm diameter), 10 die-cut Jewel Case and Tray Card Inserts, 100 die-cut adhesive labels for Zip, Floppy, Jaz or MO. Laser or ink jet printer compatible.
XM6100 $67

**CD Stomper Label Refill**

This package includes: 100ea. (118mm) die-cut adhesive CD labels; and 200ea. die-cut adhesive labels for Zip, Floppy, Jaz or MO. For use with the CD Stomper Pro and compatible with any ink jet or laser printer.
XH6103 $37.20

**CD Stomper Jewel Case Inserts**



This package includes: 50ea. die-cut and perforated CD Jewel Case J-Card and Tray Card inserts. Compatible with any ink jet or laser printer and templates that are included in the CD Stomper Pro Kit software.
XH6104 $35.20

## MITSUBISHI PAPER

MITSUBISHI CHEMICAL

### A4 Inkjet Paper

100 sheets. Whatever you are printing, you are sure to get great results with Mitsubishi Inkjet paper.
F 9455

**$19.95**

MITSUBISHI CHEMICAL

### A3 Inkjet Paper

100 sheets of quality A3 Inkjet paper.
XM5202

**$39.95**

MITSUBISHI CHEMICAL

### Transparency Film

A4 transparency film for OHP's.
XM5257

**$79.30**

MITSUBISHI CHEMICAL

### Magnetic Paper

Inkjet paper. 5 pack. Ideal as fridge magnets!
XH6251

**$23.70**

## CELCAST PAPER

### Celcast Ultra Gloss Paper

Celcast IJ90 inkjet paper. 10 pack.
XM7002

**$23.50**

### Celcast Gloss Paper

10 pack of Celcast IJ90 glossy paper.
X 6693

**$20.50**

### Celcast Business Card Paper

Inkjet paper. 90 x 52mm. 20 sheets.
F 9323

**$20.60**

### Celcast T-shirt Transfer Paper

5 T-shirt transfers for white T-shirts (A4). Suitable for use with Inkjet printers.
F 9326 **$22**
F 9327 (For Black Ts) **$24**

## PHOTO FUN PAPER

### Photo Fun Supergloss Paper

This product is a very high gloss, heavyweight paper, which gives good photo-realistic output in all modern printers, with all cartridges. Guaranteed high quality every time. 5 A4 sheets.
XM5273

**$8.70**

### Photo Fun Double Sided Photo Gloss

This product gives a fine grain photo realistic result in all modern inkjet printers with all cartridges. 5 A4 sheets.
XM5270

**$9.95**

### Photo Fun Paper Tattoos

Fun idea for parties or scaring Mum and Dad!. Can also be used as a sticker for school books as it sticks to most surfaces.
XM5337

**$9.80**

### Photo Fun Double Side Gloss and Matt

Print on either the Gloss or Matt side for the finish of your choice.
XM5338

**$7.20**

## CD LABELLING

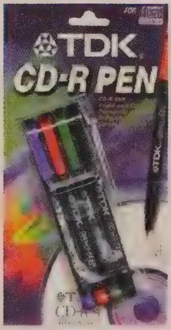
### CD Stomper Glossy Labels

This package includes: 40ea. (18mm) die-cut adhesive GLOSSY CD labels and 80ea. die-cut adhesive GLOSSY labels for Zip, Floppy, Jaz or MO. For use with the CD Stomper Pro and compatible with ink jet printers only.
XM5226

**$57.40**

TDK

### CDR Markers Pens



4 colours. Ideal for writing on the surface of most CDRs.
XM5000

**$16**

imation

### 25 Slimline CD Cases

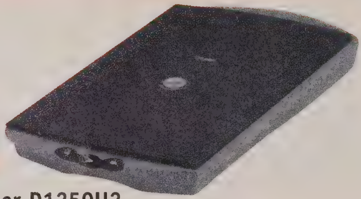
1/2 thickness cases allow twice the number of CD's to be stored in a rack. Multiple colours
XH5069 **$16.80**

Black
XH5070 **$15.80**

Visit

www.canononline.co.nz

to see the complete line up of Canon scanners, printers, multifunctions, supplies and accessories.



new for 2002

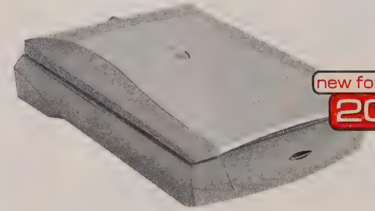
**Canon Scanner D1250U2**

Your dream scanner has arrived. The groundbreaking CanoScan D1250U2 USB flatbed scanner is Canon innovation at its best - a scanner so versatile, so easy-to-use and so feature-rich, it takes scanning to a whole new level.

XH1615

1200 x 2400 48 bit USB

$332



new for 2002

**Canon D1230U Scanner**

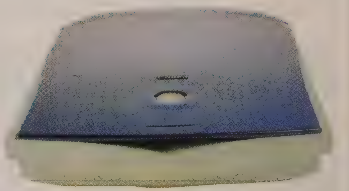
The D1230U produces a 48-bit depth and scans with a preview speed of only 6 seconds. Serious scanner users will appreciate the excellent performance of D1230U.

XH1599

1200 x 2400 48 bit USB Mac Compatible

$597

new for 2002



**Canon Scanner D646U**

The CanoScan D646U USB Flatbed Scanner delivers all the performance you need to scan photos, artwork, text documents and more with high-quality results. And its numerous, easy-to-use features help you achieve those results while having a whole lot of fun.

XH1617

600 x 1200 48 bit USB Mac Compatible

$217

**Canon D660U Scanner**

new for 2002

First, there's high performance 600 x 1200 dpi document scanning. And when you want to scan 35 mm film, it also offers outstanding 1200 x 1200 dpi optical resolution through Canon's innovative VAROS technology. The scanner's two push-buttons ensure ease of use for either type of scanning, and its 42-bit capability delivers superior colour reproduction for any application. Used with either Windows98, Windows2000 Professional, and Mac OS, the CanoScan D660U is the ideal unit for users with diverse scanning needs.

XH1590

USB Mac Compatible

$367

**Canon D2400U Scanner**

new for 2002

The CanoScan D2400UF offers true optical 2400 x 4800 dpi resolution for an exceptional price. It reads colour depth to professional standards, and the film adaptor unit reads sizes up to the 4" x 5" format used by professional photographers. Advanced controls make it suitable for graphics design and web work. Yet the innovative software controls offer simplicity for home users wanting to broaden their creative capabilities.

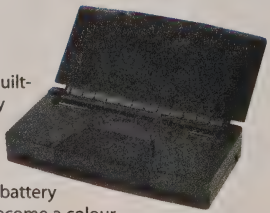
XH1606

2400 x 4800 48 bit USB Mac Compatible

$891

## PORTABLES

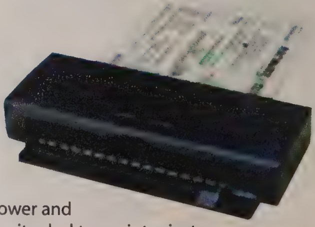
**Canon BJC85 Portable Printer**



Gives you the power to print wherever you go. It features a built-in USB and parallel port for easy connection to any compatible Mac or PC; fast IrDA (version 1.1) for wireless printing; a long-life battery (with optional battery pack); and even the ability to become a colour sheetfed scanner with the optional IS-12 a Colour Image Scanner Cartridge. So exceptional, professional-quality desktop printing is no longer a luxury reserved for the office-bound.

XP0234

$538

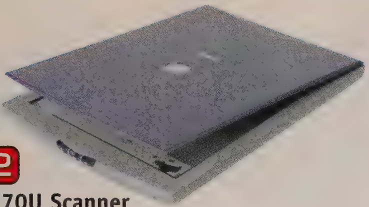


**Canon BJC55 Portable Printer**

Now you can take the power and performance of your favorite desktop printer just about anywhere, with greater ease and convenience than ever before.

XP0269

$824



new for 2002

### Canon N670U Scanner

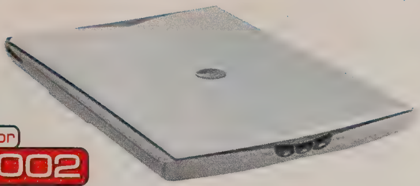
Impressive colour scanning with absolute ease? That's what the CanoScan N670U is all about. With its three dedicated scan buttons, you can scan, copy, or make an email attachment with just one touch.

XH1609

600 x 1200
48 bit

USB Mac Compatible

$293



new for 2002

### Canon N676U Scanner

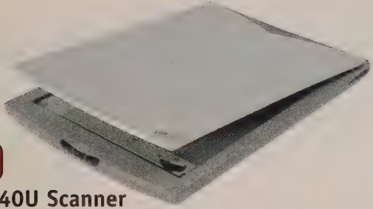
The CanoScan N676U takes colour scanning to a new level of quality and convenience. Thanks to its three dedicated scan buttons, the N676U lets you scan, copy, or make an e-mail attachment with just one touch.

XH1610

600 x 1200
48 bit

USB Mac Compatible

$312



new for 2002

### Canon N1240U Scanner

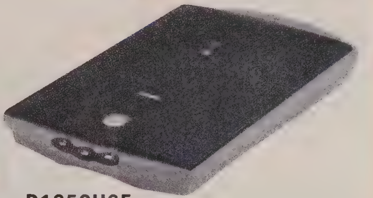
With 1200 x 2400 dpi optical resolution, portable convenience due to a passive USB interface and a "Z-lid" cover for flexibility, the CanoScan N1240U features an attractive aluminium design with a super slim height of 34mm and a weight of only 1.5kg.

XH1604

1200 x 2400
48 bit

USB Mac Compatible

$441



new for 2002

### Canon Scanner D1250U2F

Your dream scanner has arrived. The groundbreaking CanoScan D1250U2F USB flatbed scanner is Canon innovation at its best - a photo and film scanner so versatile, so easy-to-use and so feature-rich, it takes scanning to a whole new level.

XH1616

1200 x 2400
48 bit

USB

$453

new for 2002

### Canon FS2710 Scanner

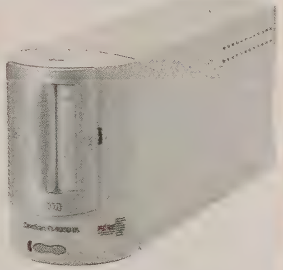
The CanoScan FS2710 is the ideal solution for professionals and photo-enthusiasts that require exceptional quality scans of 35mm or Advanced Photo System (APS) films.

XH1607

2720 dpi
12 bit per channel

Mac Compatible SCSI

$1518



new for 2002

### Canon FS4000US Scanner

Meet the new standard in desktop film scanning. With its class-leading 4,000 dpi resolution the CanoScan FS4000US creates ultra-rich digital images from 35mm film strips, mounted slides and Advanced Photo System (APS) film cartridges.

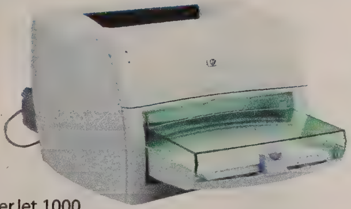
XH1608

4000 dpi
42 bit

USB Mac Compatible SCSI

$1691

## LASERJET



hp invent

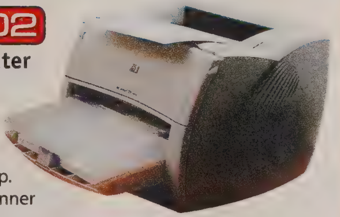
### Laserjet 1000 Laser Printer

Designed for personal printing in entrepreneurial businesses and home businesses, the hp LaserJet 1000 printer is a simple, low-cost, reliable laser printer for fundamental printing, delivering professional-looking business documents.

XP0299

600 x 600
10 ppm

$657



hp invent

new for 2002

### Laserjet 1200 Printer

Perfect for you home or home office, the HP LaserJet 1200 printer offers fast, high quality printing on your desktop. Optional copier and scanner attachment makes this in an all-in-one.

XP7304

1200 x 1200
15 ppm

$997

# Digital Cameras

## Digital Camera DC3200

The DC3200 Digital Camera with its 1.0 MP resolution makes great prints up to 5" x 7". With the DC3200's 2X digital zoom, you can get the shot you want with the touch of a button.

Its 2MB internal memory and COMPACTFLASH Card compatibility means you can keep shooting longer. See what you shot in an instant with the built-in LCD screen. With the DC3200, you'll know if the picture is a keeper.

G 8655 **$399**

*Not available in all stores

## DX3215 Digital Camera

Want to get into digital with ease? You've found your camera. Introducing the KODAK EasyShare DX3215. This camera gets you started with 1.3MP CCD resolution (1280x960 picture resolution) for great prints up to 5" x 7". 2 x Optical Zoom, 2 x Digital Zoom.

G 8689 **$649**

## DX3600 Digital Camera

The DX3600 offers 2.2 megapixel resolution, 6X zoom (2X optical, 3X digital), and is capable of delivering beautiful images for e-mailing, or stunning, photo-realistic prints (up to 8"x10") from your inkjet printer. Comes complete with EasyShare Dock.

G 8688 **$1195**

## DX3900 Digital Camera

Offers 3.1 Mega-pixel resolution for great quality prints up to 11"x14", 2X Optical & 3X Digital Zoom and offers a selection of both manual and automatic functions.

G 8683 **$1295**

Kodak
Picture Card
16

## Compact Flash Cards

Kodak Compact Flash Picture Cards make it easy to expand the memory of your digital camera, laptop computer or a variety of systems and devices with PCMCIA Type II or Type III slots. They are removable and reusable!

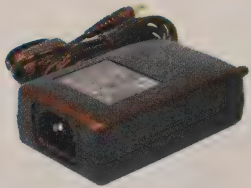
| | | |
|---|---|---|
| G 0995 | 16MB | $69.95 |
| G 0006 | 32MB | $89.90 |
| G 0107 | 64MB | $129.95 |
| G 1083 | Card Reader USB | $123 |

Kodak MultiMedia 16MB
Kodak MultiMedia 32MB
Kodak MultiMedia 64MB

## Multimedia Cards

| | | |
|---|---|---|
| G 0452 | 16MB | $65 |
| G 0453 | 32MB | $99.90 |
| G 0454 | 64MB | $179.90 |

## ACCESSORIES



**Kodak Easy Share Dock**
G 8674 **$229**

**Kodak NiMH Rapid Battery Charger + 4 NiMH AA Batteries**
G 0140 **$109.95**

**Kodak Camera Bag**
G 0139 **$39.95**

**Kodak Camera Case**
G 8679 **$79.95**

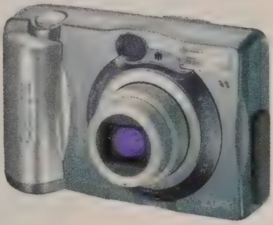
**Kodak AC Adaptor**
G 1191 **$80**

### FUJI FinePix A201 Digital Camera

The A201 meets all the high quality standards that we have come to expect from Fujifilm. This 2 mega pixel camera will capture images suitable for printing up to 6x8" sizes, as well as for e-mails and web pages.

G 8404 **$899**

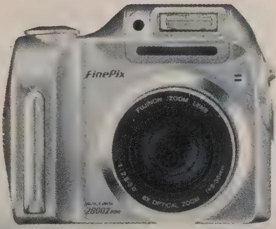
### Canon PowerShot A40 Digital Camera



Canon's high quality, easy to use Powershot A40 Digital Still Camera has a 2.1 megapixel resolution with the 3X optical and 7.5 X digital zoom.

G 9046 **$1099**

### FUJI FinePix 2800 Digital Camera



The Fujifilm FinePix 2800 Zoom digital camera offers 2 million pixel resolution (suitable for prints up to 6 x 8"), and a huge 6 x optical zoom lens which gives a true telephoto range.

G 9036 **$1499**

### Mavica Digital Camera MVCFD75

Sony's latest VGA-resolution (640x480) Mavica floppy disk camera. It is equipped with a 10x optical zoom (40-400mm 35mm equiv) lens with auto Macro that lets you go effortlessly from about one inch to infinity with full autofocus.

G 1016 **$1295**

### Canon PowerShot Ixus V Digital Camera

Ultra compact, ultra elegant, with a stainless steel body not only for looks but also for endurance. The 2.11 megapixel resolution with the 2x optical and 2.5x digital zoom gives a seamless 5x zoom capability that will output outstanding images.

G 8690 **$1549**

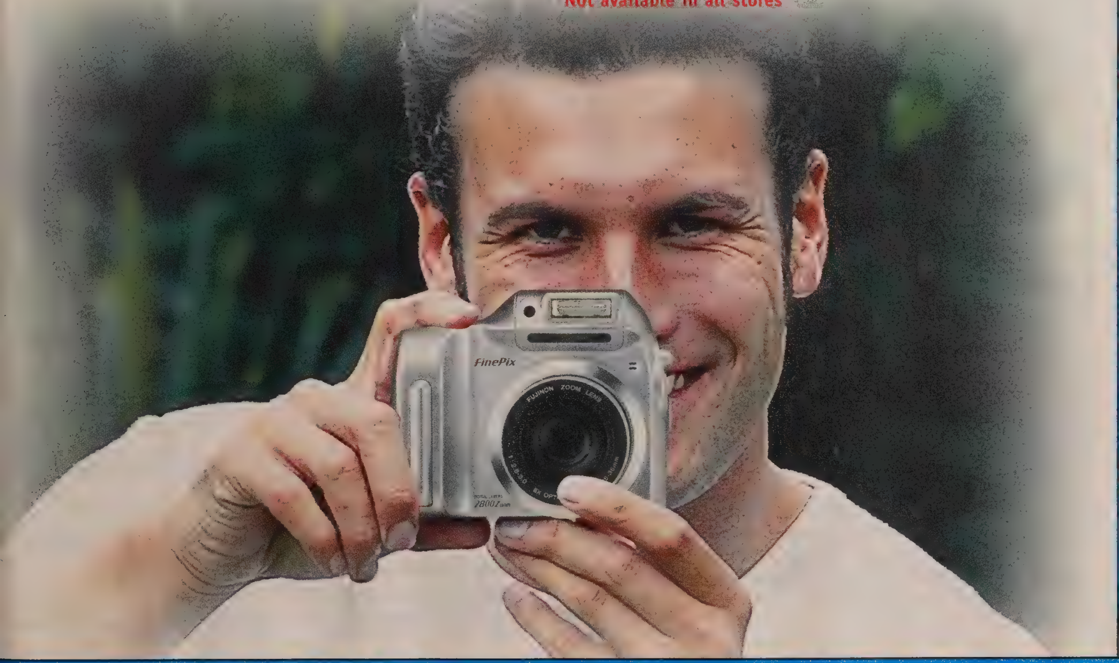
**Not available in all stores**

### OLYMPUS C700 Digital Camera

Olympus C700 2.1 MP Digital camera with 10 x optical zoom and stunning image quality up to 8 x10 ins. Whether for capturing subjects that are close-up or those at considerable distance, the Camedia C-700 Ultra Zoom is sure to get the perfect shot.

G 8684 **$1699**

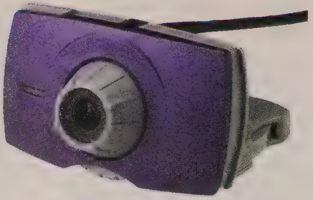
**Not available in all stores**



http://www.dse.co.nz

# TV/Video Capture & IEEE 1394

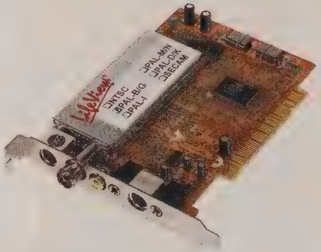
## CHICONY Internet Camera VGA



This high quality low cost dual mode digital camera is all you need to get started. It is ideal for taking VGA pictures and sending them to family and friends. A USB interface means you get fast transfer with your PC.
XH4747

**$127**

## Lifeview PCI TV Tuner Card

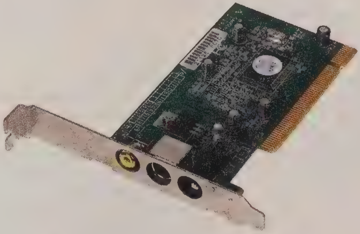


Flyvideo 98 has the latest tuner technology to allow crisp TV or video viewing in a sizable, scalable window on your PC monitor up to full screen! Now you can capture high quality still video or full-motion video footage! Add these video images to your multimedia presentations, demos, web page, or just make them for fun! FlyVideo 98 also includes a remote control unit so you can enjoy viewing without having to be near the keyboard and mouse. So sit back and enjoy the show!
XH6548

Also available with FM XH6547 **$157**

**$136**

## DSE PCI Video Capture Card



This low cost 32-bit PCI video capture card is ideal for both image and motion video capture. It allows you to capture true colour video sources through S-Video(Y/C) and composite video inputs and displays captured video in a scalable window on your PC.
XH6594

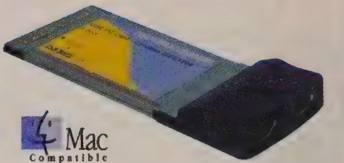
**$104**

## TV-VIEW PC to TV Converter

TV-View Pocket is a hand size universal VGA to TV converter box. It supports VGA resolutions up to 1024x768. The TV-View gets it's power from the computer keyboard - One less power point to worry about. No drivers means just plug it in, set up the correct TV Mode and away you go! One of the problems with standard TV is the lack of image crispness - especially when you view text. The TV-View supports Zoom and Position Control - allowing you to zoom into a specific area of the screen to make it more readable.
XH4624

**$227**

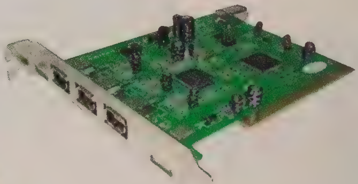
## DSE CardBus Card IEEE1394 2 Pt



Mac Compatible

2 port IEEE1394 CardBus adaptor - an idealDV video editing solution for CardBus compatible powerbook, notebook and desktop PC's. Supplied complete with Ulead VideoStudio software. Compatible with Win 98se, Me, 2000, XP, Mac OS 8.6+ using FireWire 2.2.2+.
XH6741

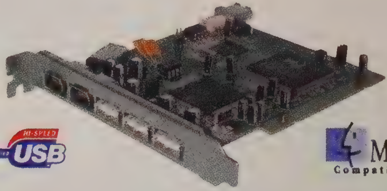
**$161**



## DOLPHIN PERIPHERALS 3-Port IEEE 1394 Card

The 3-PORT PCI 1394 card supports 1394 hot-swappable Plug & Play, which utilizes the latest in ultra high speed interface technology.
XH6660

**$98**



HI-SPEED USB

Mac Compatible

## DSE PCI Card USB 2.0 +IEEE1394

Provides a total of 4x USB2.0 & 3x IEEE 1394 (DV) ports! With easy plug-n-play installlation, it is suitable for both MAC and PC's. Supplied with DV Video editing software, DV cable and driver CD.
XH6740

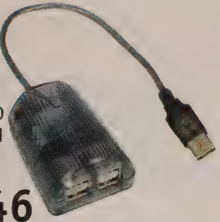
**$293**

## IEEE1394 CABLES

DSE

| | | |
|---|---|---|
| A Cable IEEE1394 4P to 4P | XH3264 | |
| B Cable IEEE1394 6P to 4P | XH3262 | |
| C Cable IEEE1394 6P to 6P | XH3265 | $28ea |

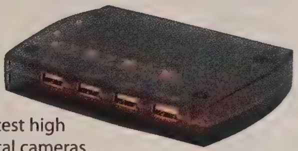
### 4-Port USB Hub Ext



Easy to install non-powered USB 1.0 HUB. Works with up to 4 high speed (12Mbps) or low speed (1.5Mbps) devices.
XH7906

**$46**

### 4-Port USB Powered Hub



Four high speed USB ports, optimised for use with the latest high speed printers, scanners, digital cameras, and other USB devices. With simple plug & play installation for fast and easy set-up this hub supports up to 127 hot-swappable USB peripherals!
XH7931

**$78**

### USB Switch

new for 2002

This easy to install USB switch supports up to 5 USB devices and up to 2 USB connected computers. This advanced design also enables you to share connected devices between computers by simply flicking a switch. Supports Windows, MAC and Linux computers.
XH7445

**$88**

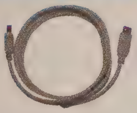
### USB Active Cable

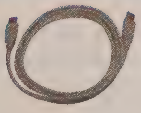
USB powered 16' extension cable.
XH3269

**$47**

## DSE USB 1.0 CABLES

A.

B.


C.


| | | |
|---|---|---|
| A. **1m A male to B male** | XH3225 | **$15** |
| B. **3m A male to B male** | XH3226 | **$19** |
| C. **3m A male to A female** | XH3224 | **$19** |

## DSE USB 2.0 CABLES

new for 2002

A.

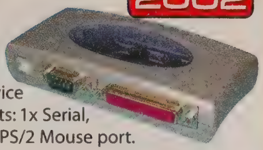
B.

C.

| | | |
|---|---|---|
| A. **1m A male to B male** | XH3299 | **$17** |
| B. **3m A male to B male** | XH3300 | **$22** |
| C. **1m A male to A female** | XH3301 | **$22** |

### USB Docking Station

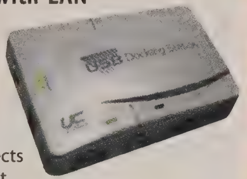
new for 2002



Ideal for notebook and desktop users who require additional I/O, the easy to install, plug-n-play device provides an additional 4x USB Ports: 1x Serial, 1x Parallel, 1x PS/2 Keyboard & 1x PS/2 Mouse port. Compatible with Windows 98/SE/2000/Me/XP
XH6393

**$194**

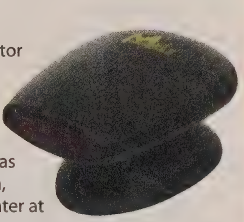
### USB Docking Station with LAN



The USB Docking Station allows you to connect all of your standard desktop peripherals to virtually any notebook with one simple connection. It contains USB, Serial, Parallel, Mouse and Keyboard ports (PS/2) plus an Ethernet port. It connects to your computer through a USB port. Connect your mouse, keyboard, printer and scanner to the USB Docking Station and with one simple connection, have the comfort and convenience of a portable computer. When it's time to leave the office, simply pull the USB cable out of your notebook and you are ready to go. No more transferring files from your desktop to your laptop.
XH4510

**$267**

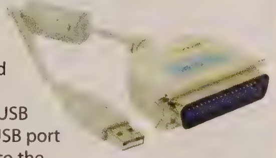
### Adaptor USB to IrDA



An infrared IrDA 1.1 compatible adaptor that plugs into the USB port on a desktop or notebook PC. It enables users to perform wireless communication between their desktop PC and mobile devices such as notebook, laptop, PDA, digital camera, cellular phone, data terminal and printer at speeds up to 4 Mbps.
XH7904

**$138**

### Parallel Adaptor



The USB-Parallel cable will allow any Windows 95/98 PC equipped with an USB port to print to any parallel printer. Simply plug the USB connector into the computer's USB port and the centronics connector into the appropriate printer. The cable is also compatible with most printer status monitoring software. It can also help to avoid conflict problems encountered with multiple parallel devices like Printer, Scanner, Zip LS120, etc.
XH4215

**$87**

### Adaptor USB to Serial

new for 2002

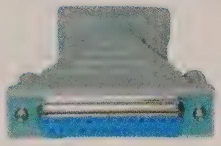
This tiny USB to serial adaptor is perfect for Legacy free desktop and notebook computers. Supports 300baud ~ 920K baud & hardware flow control. Requires no external power supply. Compatible with Windows 98, Me, 2000, XP, iMAC & Linux.
XH6381

**$76**

## DSE RS-232 ADAPTORS

**RS232 Gender Adaptor 9F - 25M**

9F to 25M.
X 2660 $8.10



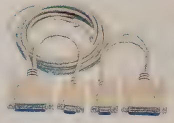
**Adaptor RS232 9M - 25F**

9M to 25F.
X 2661 $8.10

## DSE DATA TRANSFER CABLE

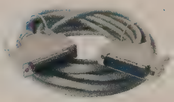
**Parallel Data Transfer Cable - 2 Metre**

2m Parallel.
X 8259 $22.10



**Serial Data Transfer Cable - 5 Metre**

5m Serial.
X 2662 $40.05



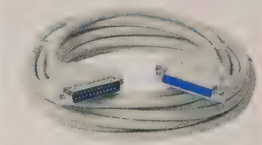
**Parallel Data Transfer Cable - 5 Metre**

5m Parallel.
X 8261 $28.90

## DSE SERIAL CABLE

**Serial Cable 2 metre 25 pin Male - 25 pin Female**

2m Serial.
X 3564 $25.10



**Serial Cable 5 metre 25 pin Male - 25 pin Female**

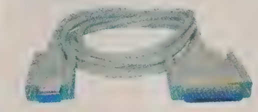
5m Serial.
X 2695 $34.30

**Serial Cable 2 metre 25 pin Male - 25 pin Male**

2m Serial.
X 3574 $25.10

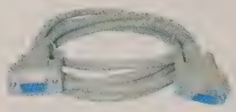
**Serial Cable 5 metre 25 pin Male - 25 pin Male**

5m Serial.
X 2696 $34.30



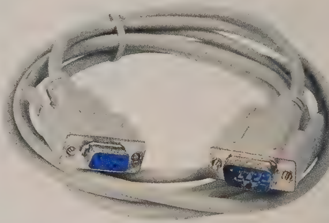
**Serial Cable 2 metre 9 pin Female - 25 pin Male**

2m Serial.
X 8007 $19.80



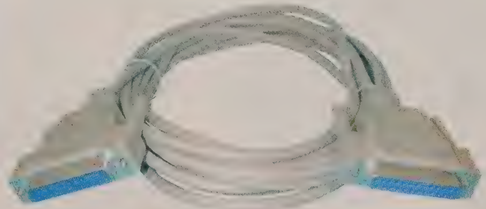
**Serial Cable 2 metre 9 pin Female - 9 pin Female**

2m Serial.
X 8406 $19.80



**Mouse Extension Cable**

Serial 2m Extension.
X 2610 $18.20



**Null Modem Cable 2 Metres**

Null Modem.
X 2609 $23.10

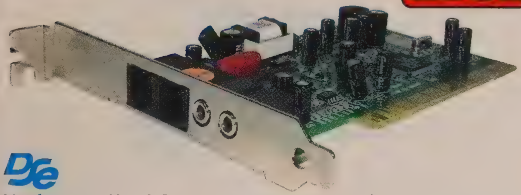
## DSE GENDER CHANGER

A
GENDER CHANGER
C
B
D
GENDER CHANGER

| | | |
|---|---|---|
| A | Gender Changer 25F-25F | X 2677 |
| B | Gender Changer 25M-25M | X 2678 |
| C | Gender Changer 9F-9F | X2675 |
| D | Gender Changer 9M-9M | X 2676 |

$8.10 ea

new for 2002

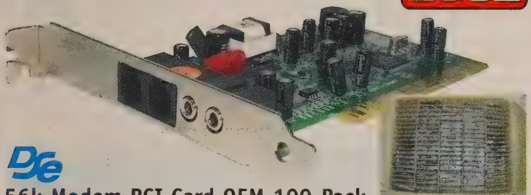


## Modem 56K - PCI Int HaM

The DSE Internal PCI 56K Modem uses a new Intel chipset with Host Accelerated Modem (HaM) technology to deliver superior performance - compatible with both Windows & Linux!
XH1136

**$83**

new for 2002



## 56k Modem PCI Card OEM 100-Pack

OEM Bulk pack containing 100 DSE Internal PCI 56K Modems - Intel chipset with Host Accelerated Modem (HaM) technology - compatible with both Windows & Linux!
XH1143

**$3978**

new for 2002

**D-Link**

## Modem 56K - Ext Serial

High-Speed 56K External Data/ Fax/ Voice Modem. It is capable of 56kps download speed from Internet Service Providers supporting 56k Flex and V.90.
XH1061

**$162**

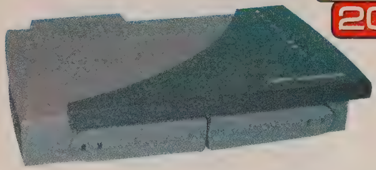
**ihug** into the internet

## Surfboard Set Top Box

The ihug Surfboard is a revolutionary new 'Internet device' that uses a TV to access the Internet. Get online, send email and experience the web for a fraction of the cost of a PC. Terms and conditions apply. (TV not included).
XH8408

**$359**

new for 2002

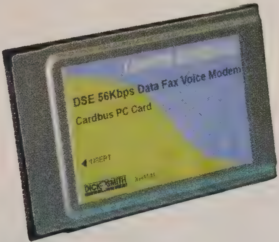


## External 56K Modem

Get online with the DSE External 56k Modem. Friendly installation software and quick start guide make getting your modem up and running a breeze.
XH1135

**$143**

new for 2002

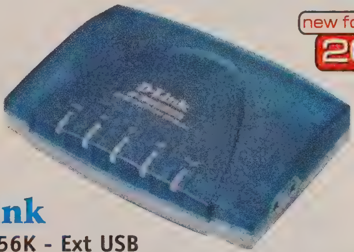


## Modem 56K PCMCIA

Get online with the DSE PCMCIA 56k Voice/Fax/Data Modem. Friendly installation software and quick start guide make getting your modem up and running a breeze.
XH1141

**$146**

new for 2002



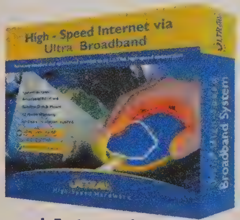
**D-Link**

## Modem 56K - Ext USB

56K USB Modem - small enough to fit in a pocket, this modem is the perfect solution for desktop and notebook computers. As a USB device, it is also the easiest modem to install.
XH1104

**$142**

new for 2002



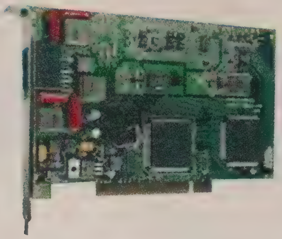
**ihug** into the internet

## Ultra High Speed Internet

Ultra satellite hardware works with any dial up Internet connection to deliver high-speed Internet downloads (to up to 1Mbps) to anywhere in NZ - even rural areas. Kit includes Ultra PCI card. Satellite dish and Installation fee additional.
XH7555

**$397**

## ADSL Modems



ALCATEL

**Internal ADSL Modem - PCI**

The Alcatel Speed Touch PC internal ADSL modem, with its screaming speed, takes ADSL to new levels of convenience and simplicity. Whether you need ADSL Connectivity for a single PC, or via a server, the Speed Touch PC is the ADSL modem you install... and forget about.

XH1124

**$283**

ALCATEL

**External ADSL Modem - USB**

The Speed Touch USB is the ideal solution for the home, students or the office. With the Speed Touch USB surfing the Internet becomes a whole new experience. In fact this external ADSL modem allows speeds up to 200 times faster than traditional modems. Connecting to the Speed Touch USB to a desktop or laptop computer is true plug and play.

XH1127

**$297**

SPEED TOUCH
ALCATEL

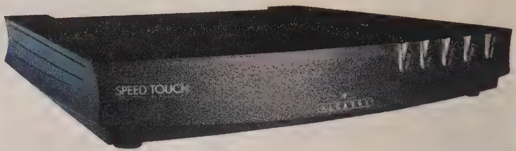
ALCATEL

**ADSL Router 510 Switch**

Internet access for multiple users is as easy as simply clicking the mouse! With the SpeedTouch 510, surfing the Internet becomes a whole new experience. This external ADSL residential gateway allows speeds up to 200 times faster than traditional modems.

XH7950

**$891**



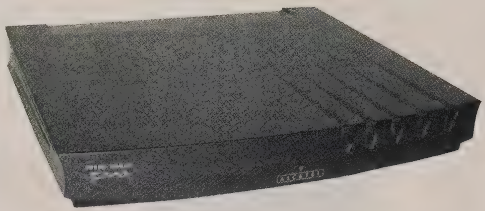
ALCATEL

**ADSL Speed Touch HUB**

Hate waiting? You won't have to wait for the Internet. With the Speed Touch Pro (with built-in 4-port 10Mbps Hub) surfing the Internet, downloading files and interconnecting LANs become a whole new experience.

XH7949

**$691**



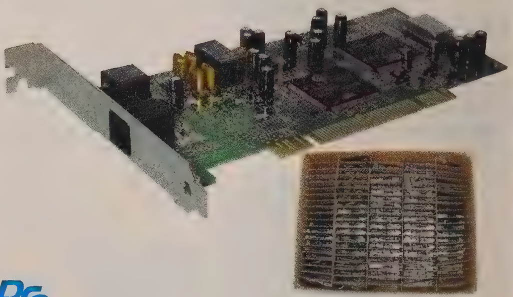
ALCATEL

**ADSL Speed Touch Pro**

Hate waiting? You won't have to wait for the Internet. With the Speed Touch Pro surfing the Internet, downloading files and interconnecting LANs become a whole new experience.

XH1133

**$458**



DSE

**ADSL Modem PCI Card OEM 100-Pack**

OEM bulk pack containing 100 DSE PCI Card ADSL Modems - Easy to install, PCI ADSL Modem provides you with an "always on" high-speed broadband connection to the Internet and supports speeds up to 8Mbps! Windows 9x, ME, NT, 2000, XP drivers included.

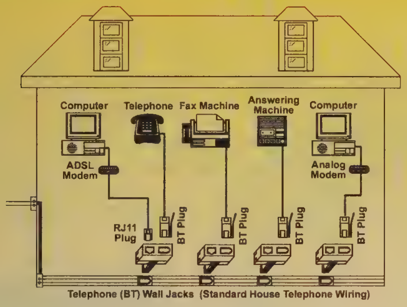
XH1144

**$14,331**

# Get Fast Internet Now!

## It's super fast!

ADSL (Asymmetrical Digital Subscriber Line) technology provides a high speed Internet connection to your home or office. It provides received data download rates up to 8Mbps and upload rates up to 1Mbps – the actual speed you will get depends on how close you are to the phone exchange, the condition of your telephone line and what ADSL service plan you choose.



## It's easy to install!

It works by combining both Voice and high speed Internet data on your normal phone line. In your home or office, you need to separate these 2 signals by having a Splitter professionally installed by Telecom or by simply plugging in ADSL Filter/s yourself.

## You're always connected!

Unlike 56K dial-up modem technology, with ADSL, your Internet connection is always on! No more waiting for the computer's modem to dial. And if you use an ADSL router, all computers on the network are also connected. ADSL is really fantastic solution for networked computers – it's suitable for any TCP/IP capable operating system like Windows, Mac, Linux etc.

## Talk and Surf on the same line – at the same time!

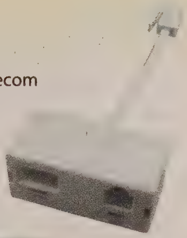
Because both Voice and Data are sent on the same telephone line, ADSL enables you to talk on the phone and surf the Internet at the SAME TIME. A great way to eliminate those busy signals. Now there is no need for a second dedicated phone line for the Internet.

new for 2002

### DSE ADSL Line Filter

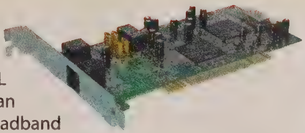
A low profile ADSL filter suitable for all Telecom approved ADSL Modems & Routers sold in New Zealand. This filter is also compatible with Telecom's newer 2 wire and older 3 wire wiring practices and is suitable for all types of Telephones.
XH7556

**$21**



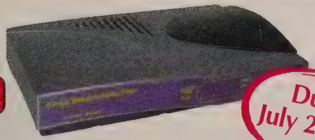
new for 2002

### DSE Internal ADSL Modem - PCI



This easy to install, PCI ADSL Modem provides you with an "always on" high-speed broadband connection to the Internet and supports speeds up to 8Mbps!
XH1137

**$198**



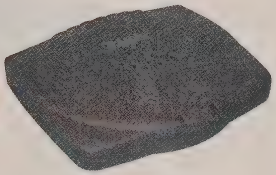
Due July 2002

new for 2002

### DSE ADSL Router - EXT UTP+USB

The DSE ADSL Router provides high speed ADSL connection to the telephone line. It supports both USB and Ethernet PC connection and includes a 4 port 10/100Mbps Duplex Switch - includes advanced bridging and firewall features.
XH7916

**$472**



new for 2002

### D-Link ADSL Modem - DSL200

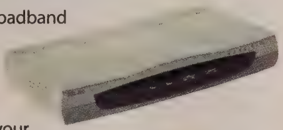
The D-Link DSL-200 is an external ADSL modem designed for high-speed Internet access and/or remote connection to a home or office LAN.
XH7954

**$337**

new for 2002

### D-Link ADSL Router - DSL500

The DSL500 combines ADSL broadband WAN connection with IP routing, transparent bridging and Internet gateway functions, all in one compact box. It can be used to connect your SOHO to your corporate head office and to the Internet.
XH7952

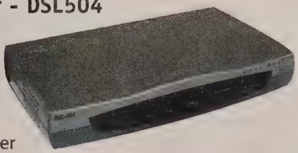


**$534**

new for 2002

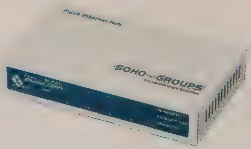
### D-Link ADSL Router - DSL504

With the DSL-504 ADSL remote router, speeding up for your network has never been easier or more cost-effective. It offers multi-user connectivity many times faster than traditional modems and much more...
XH7953



**$697**

# Network Hubs, Switches, Servers & WLAN

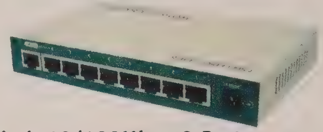


### Switch 10/100Mbps 5 Port

Hand sized 5-port 10/100Mbps Switch for home and office networks. Wall or desk mountable and supplied with mains adaptor. Full duplex supported for maximum data transfer of 20/200Mbps at up to 100m!

XH7910

**$124**



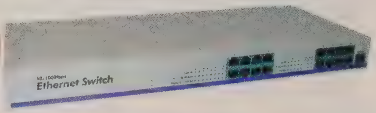
### Switch 10/100Mbps 8 Port

Hand sized 8-port 10/100Mbps Switch for home and office networks. Wall or desk mountable and supplied with mains adaptor. Full duplex supported for maximum data transfer of 20/200Mbps at up to 100m!

XH7911

**$164**

new for 2002



### Switch 10/100Mbps 16 Port

16 port 10/100Mbps NWAY switch supports duplex for up to 20/200Mbps. Ideal for home or office. Fantastic for LAN parties! Data filter and forward rates up to 148,800pps per port; 3 Megabits packet buffer; 16K MAC table. Rack or desk mountable.

XH7951

**$297**

new for 2002

### PCMCIA Card 11Mbps WLAN

11Mbps DSE Wireless PCMCIA Card with easy plug-n-play connectivity. Fully compatible with IEEE802.11b standards. Uses Direct Sequence Spread Spectrum (DSSS) technology and supports WEP encryption.

XH7918

**$268**

new for 2002

### USB Adapter 11Mbps WLAN

11Mbps DSE Wireless network adaptor with easy to connect USB Interface. Fully compatible with IEEE802.11b standards. Uses Direct Sequence Spread Spectrum (DSSS) technology and supports WEP encryption.

XH7947

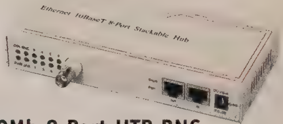
**$297**

### Hub 10Mbps 5 Port UTP

5-Port 10Base-T network HUB suitable for home, apartment or small office use. Supports 2 uplink ports for stacking up to 3 hubs in one segment.

XH7907

**$64**

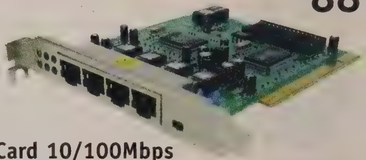


### Hub 10Mb 8 Port UTP BNC

Palm sized 8-port 10Mbps stackable hub for home and small office networks. Has 1x BNC port for compatibility with older coax networks. Wall or desk mountable and supplied with mains adaptor, stack cable and BNC-T adaptor.

XH7908

**$88**



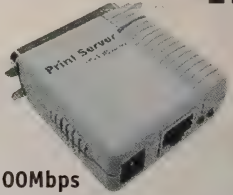
### PCI Hub Card 10/100Mbps

The 10/100Mbps PCI 4-Port Switching Hub Card combines the simplicity of a network adapter and an Ethernet Switch in a single easy-to-use package. The host computer is connected directly to the network without any additional cabling, and the Switching Hub Card is powered directly through the host computer's bus. Up to five devices/PCs can be networked.

XH7914

**$121**

new for 2002



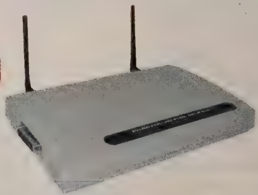
### Print Server 10/100Mbps

This DSE Print Server replaces the need for network computers to service print jobs. It allow simultaneous multi-protocol support for easy adoption to different network environments such as Netware, Windows 95/98/ME/XP/2000/NT, Unix, Etc.

XH7915

**$197**

new for 2002



### WLAN Broadband Router

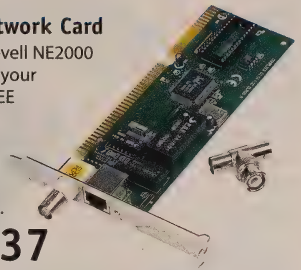
Advanced 11Mbps IEEE802.11b Wireless Access Point with built-in 4 port 10/100Mbps Duplex switch, 10Mbps WAN Interface & Network Print Server. Supports advanced Firewall and Routing features along with WEB or Telnet management.

XH7948

**$548**

### 10Mbps ISA Network Card

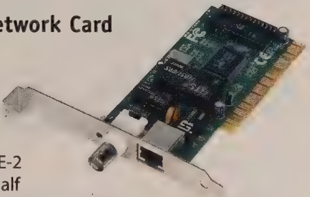
Top quality network card. Novell NE2000 compatible and connects to your network via UTP or Coax - IEEE 802.3 10BASE-T,IEEE 802.3 10BASE-2 compliant. Supports both half (10Mbps) and full duplex (20Mbps) Ethernet protocols. Realtek Chipset.
XH7597



**$37**

### 10Mbps PCI Network Card

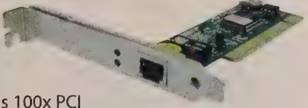
Top quality network card. Novell NE2000 compatible and connects to your network via UTP or Coax - IEEE 802.3 10BASE-T,IEEE 802.3 10BASE-2 compliant. Supports both half (10Mbps) and full duplex (20Mbps) Ethernet protocols. Realtek Chipset.
XH7598



**$37**

### 10/100Mbps PCI Card OEM 100-Pack

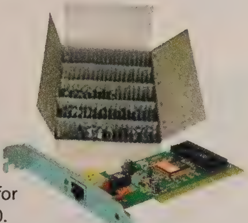
This OEM Bulk Pack contains 100x PCI 10/100Mbps Network cards. Drivers available for Mac OS 8.x/9.x, Linux, Windows 9x, ME, NT, XP & 2000.
XH7955



**$1573**

### 10/100Mbps WOL PCI Card OEM 100-Pack

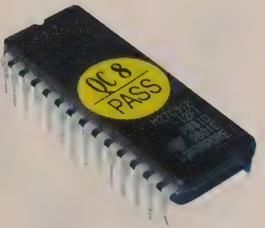
This OEM Bulk Pack contains 100x PCI 10/100Mbps WOL Network cards. Drivers available for Linux, Windows 9x, ME, NT, & 2000.
XH7956



**$1732**

### Boot ROM for XH7917

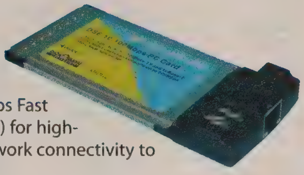
For use with XH7917 DSE PCI Card 10/100Mbps Network Card. Once installed, it enables a client PC to boot off a remote network hard drive. Ideal for network installations with diskless workstations. Supports RPL for Novell NetWare, Microsoft NT, Etc.
XH7946



**$19**

### CardBus Card 10/100Mbps

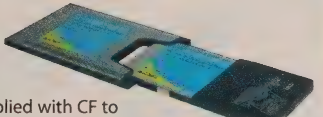
Advanced 32-bit 10/100Mbps Fast Ethernet PC Card (CARDBUS) for high-performance notebook network connectivity to Ethernet networks.
XH7912



**$97**

### Compact Flash + PCMCIA 10/100Mbps Card

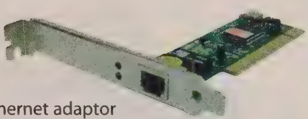
10/100Mbps CF Card supplied with CF to PCMCIA adaptor. Supports full duplex operation for up to 20/200Mbps. Suitable for use with CF/PCMCIA enabled notebook, desktop, palmtop, pocket PC, Etc. Drivers for Win 9x, Me, XP, NT, 2000, XP, CE, DOS & Linux.
XH6039



**$143**

### 10/100Mbps PCI Network Card

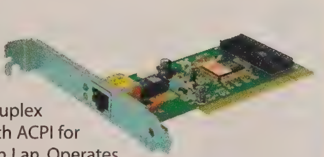
This high performance 10/100Mbps Duplex PCI Ethernet adaptor is based on the popular Realtek RTL8139C chipset which is supported by most popular operating systems like Windows and Linux. Duplex operation means that this card can transfer data at up to 20Mbps or 200Mbps providing the Hub, Switch or other connected network device also supports Duplex operation.
XH7900



**$27**

### PCI Card 10/100Mbps - WOL

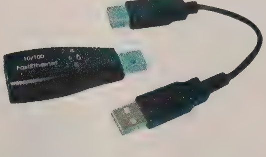
10/100Base Dual speed Duplex 32 Bit PCI Lan Adapter with ACPI for PC's that support Wake On Lan. Operates up to 20/200Mbps in Duplex mode - includes BOOT-ROM socket.
XH7917



**$42**

### Adapter USB to 10/100Mbps

This tiny USB adapter is ideal for desktop and notebook PC's. Supports 10/100Mbps Ethernet networks, WOL & Duplex flow control. Drivers for Windows 98, Me, 2000, XP, Linux 2.4.0+, WinCE 3.0.
XH7913



**$87**

http://www.dse.com

# *Network Testers, Jacks, Plugs etc.*

Lan Cable Tester

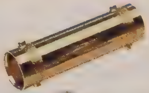
## LAN Cable Tester

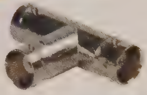
An easy-to-use cable tester that can verify cable continuity, short circuits and incorrect wiring of Cat.5 and coaxial LAN cables. Comes complete with three connector leads and an adaptor, in a protective carry case.

Q 1501 $\$119$

A

B

C


D


## BNC Adaptors

| | | | | | |
|---|---|---|---|---|---|
| A | 50Ω Terminator | P 2280 | C | Female - Female | P 2265 |
| B | Male - 2x Female | P 2277 | D | Female - 2x Female | P 2275 |

$\$5^{95}$ ea

## Professional Lug Crimping Tool

This robust lug crimper has a ratchet drive for accurate control, variable pressure adjustment and double jaws for single action crimping. Suits a wide variety of common lugs.

T 3535 $\$66$

## Rotary Coax Cable Stripper

This tool will strip both the outer jacket and inner insulation of coax in one easy operation. Suits common RG58/59/62 and RG6 cables. Comes with allen key for blade depth adjustment.

T 3640 $\$25^{80}$

## 6/8 Pin Modular Crimping Tool

Cuts and strips cables, and crimps various 6pin and 8pin modular connectors including 6P4C (RJ-11), 6P6C (RJ-12), and 8P (RJ-45) varieties. Rugged metal construction for accurate crimps.

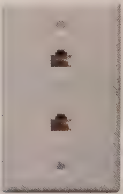
T 2920 $\$51^{80}$

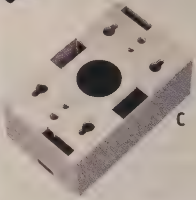
## Cat 5 Termination Kit

Ideal solution for the network professional - a handy Network Termination Tool Kit.

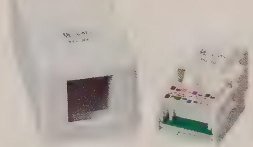
XH7567 $\$187$

A


B

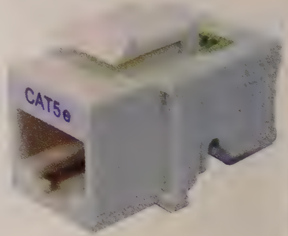

C

| | | | |
|---|---|---|---|
| A | Single Flush Plate & Socket | X 8544 | $\$11^{50}$ |
| B | Double Flush Plate & Sockets | X 8543 | $\$15^{30}$ |
| C | Mounting Box | XH7584 | $\$3^{90}$ |

A


B

| | | | |
|---|---|---|---|
| A | X 8577 | Single with Socket | $\$9^{40}$ |
| B | X 8588 | Double with Sockets | $\$17^{30}$ |



## Cat5e Keystone Jack

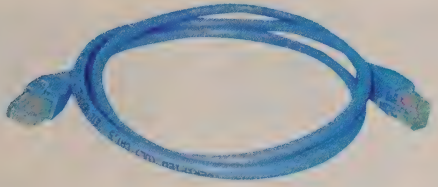
CAT.5e unshielded toolless Keystone jack ideal for all UTP cabling applications.

XH7578 $\$9^{70}$

## RJ-45 Crimp Plug - 10 pack

Used in custom cabling so you can design your network cables to be any length.

X 8996 $\$9^{10}$



**Cat 5e Patch Leads**

| | | | | | |
|---|---|---|---|---|---|
| 1 m | XH3283 | $8.70 | 5 m | XH3285 | $17.60 |
| 3 m | XH3284 | $13.50 | 10 m | XH3286 | $28 |

**Cat 6 Patch Leads**

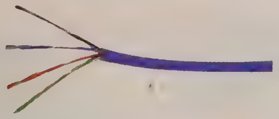
| | | | | | |
|---|---|---|---|---|---|
| 1 m | XH3291 | $13 | 5 m | XH3293 | $29.70 |
| 3 m | XH3292 | $21.80 | 10 m | XH3294 | $49 |

**Cat 5e Crossover Cables**

| | | | | | |
|---|---|---|---|---|---|
| 1 m | XH3287 | $8.70 | 5 m | XH3289 | $17.60 |
| 3 m | XH3288 | $13.50 | 10 m | XH3290 | $28 |

**Cat 6 Crossover Cables**

| | | | | | |
|---|---|---|---|---|---|
| 1 m | XH3295 | $13 | 5 m | XH3297 | $29.70 |
| 3 m | XH3296 | $21.80 | 10 m | XH3298 | $49 |



**Category 5E 350MHz Data Cable**

Unicable CAT5 Enhanced is ideal for emerging applications such as 1000BaseT (Gigabit Ethernet), IEEE 8.2.3, IEEE 802.5 and 622Mbps ATM (Asynchronous Transfer Mode) as well as current CAT5 applications including 10BaseT and 100BaseT Fast Ethernet.
W 2156

$1.95/m

**10 Base2 Network Cables**

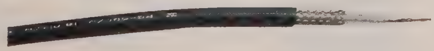
| | | | | | |
|---|---|---|---|---|---|
| 2 m | X 6904 | $14.60 | 10 m | X 6906 | $25.20 |
| 5 m | X 6905 | $19.80 | | | |

**Adaptor RJ45 Joiner**

RJ45 adaptor to join two Cat 5e 10/100Mbps cables which enables you to join two short patch leads for greater length.
XH4232

$18.20

UTP JOINT ADAPTER
CATEGORY 5



**50 Ohm RG-58C/U Coaxial Cable**

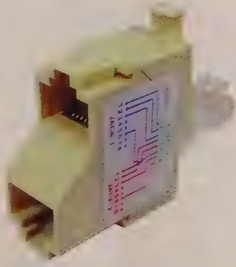
Commercial grade 50 ohm coax. Complies with Mil Spec MIL-C-17D. Ideal for mobile installations due to its small 5mm OD size. It can also be used outdoors over long periods due to its UV resistant PVC outer sheath. Suitable for 10BaseT 10Mbps Networks.
W 2092

$1.95/m

**RJ45 Splitter Data**

Modular RJ45 T wiring adaptor to convert 1x RJ45 8 wire outlet to 2x 4 wire outlets. Commonly used in network situations where you need 2x data outlets but currently only have 1.
XH4247

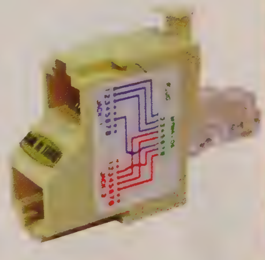
$19.80



**RJ45 Splitter Data & Voice**

Modular RJ45 T wiring adaptor to convert 1x RJ45 8 wire outlet to 2x 4 wire outlets. Commonly used in network situations where you need 1x data outlet for the computer and 1x Voice outlet for the phone.
XH4248

$19.80



www.dse.co.nz

# Drive Media & Storage

### CDR 80min 24speed

High quality CDR disc. Compatible with 1x through to 24x writers. New improved organic dye "Super-Azo" for increased accuracy.
XM4201 **$2.20**

### Coloured CDR - 10 Pack

Box of 10 Mitsubishi 80 Min/700MB CD-Rs in assorted colours.
XM4225 **$20**

### CD-RW Disc

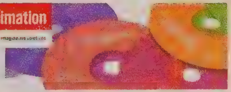
Backup data or create audio CD's with these blank CD-RW's, if your data changes simply re-write the CD! You can re-write the CD up to 1000 times.
XH4030 **$4.50**

### 1.44Mb IBM PC Formatted Floppies

| | | |
|---|---|---|
| 10 pack | X 7457 | $7.90 |
| Single | X 7458 | $1.65 |

### 80min 24 speed CD-R 10 Pack

These Imation CD-Rs are compatible with 1x-24x speed CD-R recorders, and can hold up to 80 minutes of audio, or 700MB of data.
XM4175 **$18**



### 80min 24 speed CD-R 10 Pack

These CD-Rs are compatible with 1x-24x speed CD-R recorders, and can hold up to 80 minutes of audio, or 700MB of data. Assorted colours.
XM4191 **$21.40**

### 74min CDRW

Quality rewriteable CD-RW. Rewriteable up to 1000 times. Up to 4x rewrite.
XM4138 **$5.95**

### 1.44Mb IBM PC Formatted Floppies

| | | |
|---|---|---|
| 10 pack | XM4109 | $7.80 |
| 10 pack Neon | XM4110 | $8.85 |

### 24 x 80min CD-R 10 Pack Spindle

Quality DSE 80 minute CD-Rs with up to 24x record speed 700Mb.
XM4226 **$10**

### CDR Black 20 Pack

20 pack of 24x 80 minute "Black" CDR's.
XH4193 **$44**

### CDRW 10x 5 Pack

Features increased recording speeds and noise-free playback. Use it for temporary storage, presentations, backups, downloads and archiving.
XM4204 **$29**

### DAT Tape

| | | |
|---|---|---|
| 4Gb | XM4106 | $23.50 |
| 12Gb | XM4115 | $42.70 |

### Elite CDRW Blank Disc 700MB / 80min

Suitable for most CD writers and re-writers. Record at up to 4x re-write speed.
XM4300 **$3.95**

### DVD Media

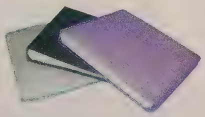
Store up to 4.7Gb of data, audio or video.
XM0479 **$45**

### Iomega Zip Disks

| | | |
|---|---|---|
| 100Mb | X 6662 | $28.50 |
| 250Mb | XM4116 | $43.70 |

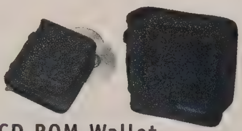
### TR 3/4

| | | |
|---|---|---|
| 1.6Gb | XM 4107 | $57.10 |
| 40Gb | XM4105 | $58.40 |



### TDK CD Album 3x12 disc

Three 12-disc folders in a handy filing box. Ideal for DVD, CD, or CDROM discs. 36 disc capacity.
C 9272 **$9.90**

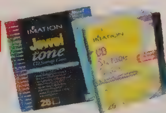


### CD ROM Wallet

Black leatherette. Holds 24 CDs
X 8419 **$23.10**

### CD ROM Wallet

Holds 48 CDs
X 8421 **$38**



### 25 Slimline CD Cases

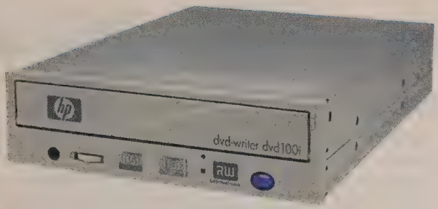
1/2 thickness cases allow twice the number of CD's to be stored in a rack.

| | | |
|---|---|---|
| Multiple colours | XH5069 | $16.80 |
| Black | XH5070 | $15.80 |

### Carry Case

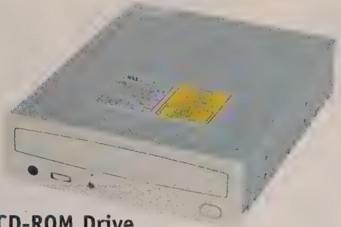
The new-look Odyssey is smooth to the touch, with futuristic materials and styling. Patented BubbleSleeves reduce disc surface contact by 50%.

| | | |
|---|---|---|
| 32 CDs | C 9269 | $29.90 |
| 64 CDs | C 9270 | $49.90 |



### DVD-Writer DVD100I

Simply the most advanced storage device! Create your very own custom DVD quality video that has the highest level of compatibility with existing DVD-ROMs and DVD video players. Capture and burn AVI, Quicktime, MPEGI and MPEG2 files directly and quickly. Can also be used as a CD writer!
XH4085
**$1296**

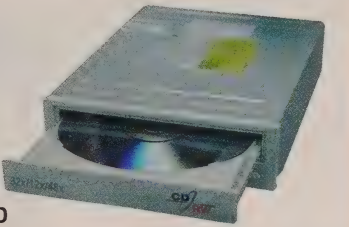


### 52x CD-ROM Drive

This 52X CD-ROM features CAV Technology - whereby a constant rotational speed is maintained by the drive, producing an increased transfer rate as the head reaches the outer tracks of the CD-ROM disk - allows the CD-ROM drive to obtain a maximum transfer rate of 7.8MB per second!
XH3977
**$97**

### DVD-ROM Drive 16x IDE

Upgrade your PC to play DVD titles with this amazing ASUS 16x DVD-ROM drive. Easy installation, Multi-format support, Double Dynamic Suspension System, Fast DMA100 Interface, DVD playback software and much more...
XH7559
**$253**



### 32x/12x/48x CD Writer CW058D

32x Write, 12x re-write, 48x read IDE CD-Writer supporting digital audio extraction. Supplied with Nero 5.5, audio cable, a blank CD & CDRW & installation instructions.
XH4097
**$347**

### 3.5" Floppy Disk Drive

Having problems reading or writing disks? This 3.5" Floppy Disk Drive may be just what you need...
XH6982
**$53**

### 8x8x24 USB External CD Writer

With the Imation 8x8x24 CD Burner, now you can totally customise your CD collection. With this USB external CD-RW drive, it is easy to make your own music or multimedia CDs on a PC or Mac! Optional IEEE 1394 and PC card interfaces available.
XH4108
**$663**

## DSE USB DEVICES

The DSE USB Drive allows you to store and move up to 16MB of data between Mac, Windows and Linux computers. With it's easy plug-n-play USB interface, installation is a snap. Once installed, it looks just like another drive supporting drag-n-drop!

| | | |
|---|---|---|
| **USB Drive 16MB** | XH8020 | $98 |
| **USB Drive 32MB** | XH8021 | $148 |
| **USB Drive 64MB** | XH8022 | $198 |
| **USB Drive 128MB** | XH8023 | $378 |
| **USB Drive 256MB** | XH8024 | $583 |

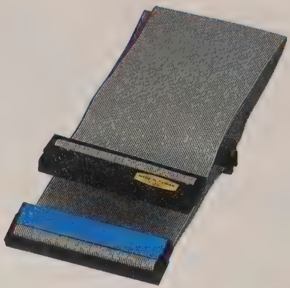
256MB USB DRIVE
USB Drive

# Floppy, Hard Drives & Drive Accessories

## Cable IDE UDMA 66/100MHz

IDE Cable that suits fast DMA66/100 drives.
XH3244

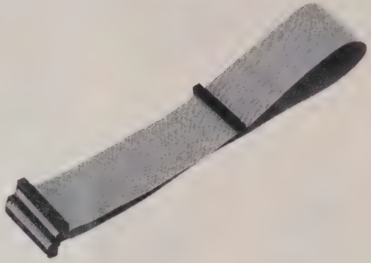
$\$16^{10}$



## Universal IDE Cable

A general purpose IDE cable fitted with DIL socket connectors. Suitable for all IDE devices.
X 5472

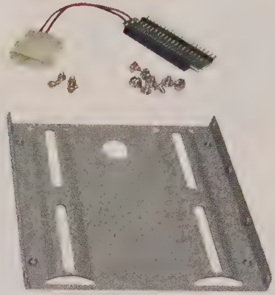
$\$13^{10}$



## Drive Adaptor 2.5" > 3.5"

This mounting kit is for mounting 2.5" notebook type hard drives into 3.5" drive bays. Includes tray, adaptor & mounting screws.
XH6905

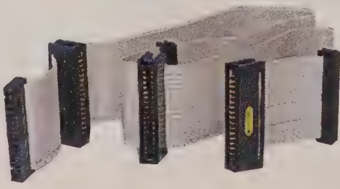
$\$16^{10}$

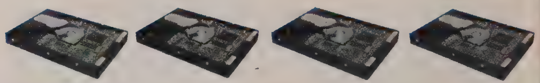


## Universal IDC Cable

IDC cable for PC floppy drives.
X 2606

$\$19^{20}$



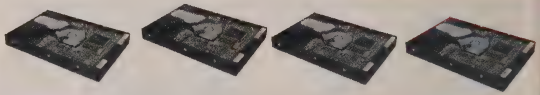


## Maxtor® HDD IDE 3.5" 5400rpm Hard Drives

The Maxtor hard disk drive is designed to meet the need for capacity. The D540X drive uses advanced integrated electronics combined with numerous design innovations to achieve a wide range of capacity points, solid reliability, and quiet operation.

| | | | |
|---|---|---|---|
| **20GB** | XH7055 | **60GB** | XH7057 |
| **40GB** | XH7056 | **80GB** | XH7058 |

**Call for latest pricing**



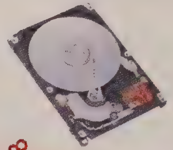
## Maxtor® HDD IDE 3.5" 7200rpm Hard Drives

The Maxtor DiamondMax hard disk drive is designed to meet the need for performance. The D740X drive uses optimized, electrical and mechanical designs to achieve leading capacity points, quality, reliability, and acoustics at competitive prices.

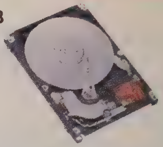
| | | | |
|---|---|---|---|
| **20GB** | XH7059 | **60GB** | XH7061 |
| **40GB** | XH7060 | **80GB** | XH7062 |

**Call for latest pricing**

**A**



**B**



## FUJITSU 2.5" 4200 rpm Hard Drives

Coupled with its ruggedness, small size and low power consumption this 10 GB drive is ideal for a wide variety of applications.

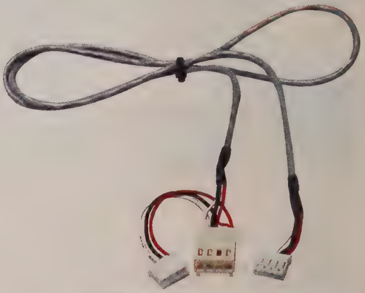
| | | | | |
|---|---|---|---|---|
| **A** | **10GB** | XH7046 | **B** | **20GB** | XH7047 |

**Call for latest pricing**

## CD-ROM Audio Cable

A general purpose audio cable that goes from the PC CDROM drive to your sound card. Supplied with 3 of the most common connectors.
XH1810

$\$9^{10}$



3.5" HEAD CLEANING DISKETTE
WITH CLEANING FLUID
DISK-CARE

## 3.5" Floppy Disk Drive Cleaning Kit

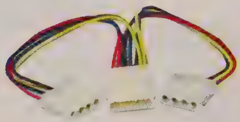
Cleans the 3.5 inch floppy drive in you computer for dust and dirt. Helps prevent damaged disks, and makes your drive last longer.
X 3520

$\$9^{80}$

## Adaptor 3.5 Disk Drive Pwr

Drive Power Adaptor.
X 2605

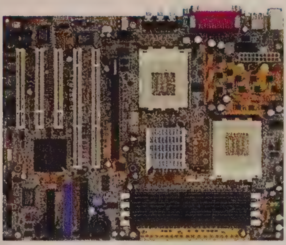
$\$6^{40}$



## Disk Drive Power Splitter

Drive Power Splitter.
X 2604

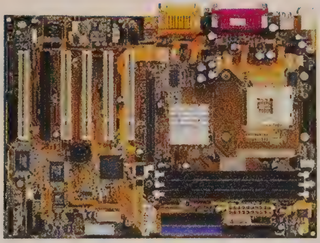
$\$7^{80}$



### A7M266-D with Audio

Harness the performance of AMD Athlon MP processors with the A7M266-D.
XH6717

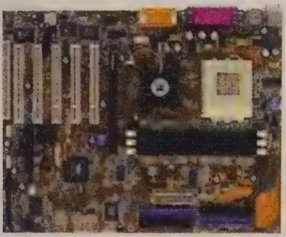
**$727**



### P4B-LS with Aud,LAN,SCSI

The P4B-LS motherboard supports the latest Intel Pentium 4 Socket 478 Willamette / Northwood Processor, also known as P4, via a 478-pin surface mount ZIF socket.
XH6715

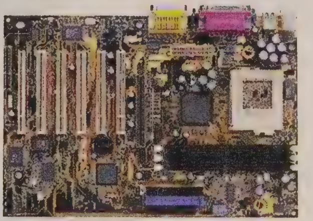
**$885**



### A7V266-E Audio & RAID

From Asus come a high performance motherboard based on the new KT266A chipset.
XH6706

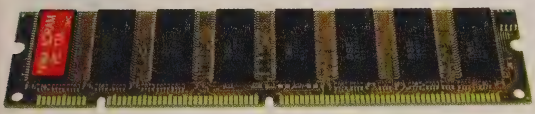
**$527**



### TUSL2-C with Audio

Based on the Intel 815EP B0 chipset, the TUSL2-C streamlines integrated motherboard features such as graphics and audio, allowing power users to choose more advanced VGA and sound cards.
XH6425

**$280**

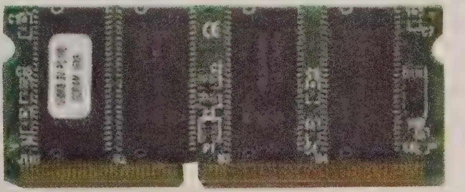


### PC133 SDRAM

The smartest upgrade that most users can make - allows your computer to run applications FASTER and multi-task better. Supplied with massive 5 year warranty!

XH7429 128Mb 8-chip
XH8016 256Mb 16-chip

Call for latest prices

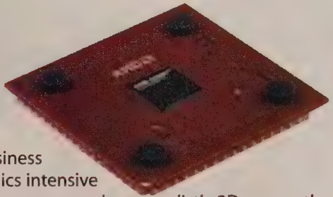


### PC133 SODIMM 144 Pin

The smartest upgrade that most users can make - allows your computer to run applications FASTER and multi-task better.

XH8013 128Mb
XH8012 64Mb
XH8011 32Mb

Call for latest prices



### CPU

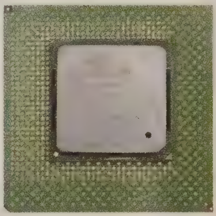
From demanding business applications to graphics intensive desk top publishing programs and near-realistic 3D games, the AMD processor gives business users and computer enthusiasts one of the highest levels of software performance available today.

XH6442 XP2000
XH6440 Duron 1200
XH6441 XP1900

Call for latest prices

### CPU P4 478 400FSB

The Intel Pentium 4 processor maximizes the performance of cutting-edge technologies such as digital video and online gaming, and has an innovative design capable of taking full advantage of emerging Web technologies.

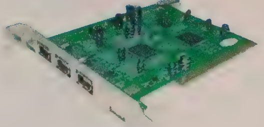


XH6421 2.0GHz
XH6418 1.7GHz
XH6419 1.8Ghz
XH6420 1.9GHz

Call for latest prices

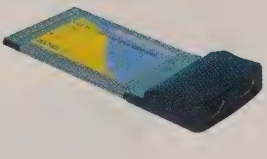
## I/O, USB & IEEE 1394 Cards

### 3-Port IEEE 1394 Card



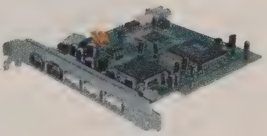
The 3-PORT PCI 1394 card supports 1394 hot-swappable Plug & Play, which utilizes the latest in ultra high speed interface technology.
XH6660 $98

### CardBus Card IEEE1394 2 Pt



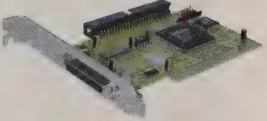
An idealDV video editing solution for CardBus compatible powerbook, notebook and desktop PC's. Supplied complete Ulead VideoStudio software. Compatible with Win 98se, Me, 2000, XP, Mac OS 8.6+ using FireWire 2.2.2+.
XH6741 $161

### PCI Card USB 2.0 +IEEE1394



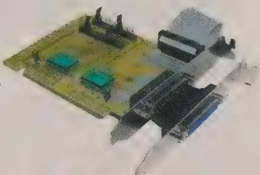
Provides a total of 4x USB2.0 & 3x IEEE 1394 (DV) ports! With easy plug-n-play installlation, it is suitable for both MAC and PC's. Supplied with DV Video editing software, DV cable and driver CD.
XH6740 $293

### PCI Card SCSI - PC + MAC



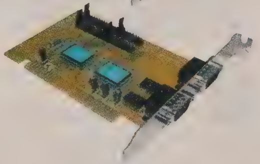
This Ultra-SCSI Controller card is a high performance PCI bus master UltraSCSI host adaptor which can provide the interface between UltraSCSI bus and PCI local bus.
XH6742 $121

### 2-Parallel Port ISA



2 port. ISA.
XH6651 $56

### 2-Serial Port ISA

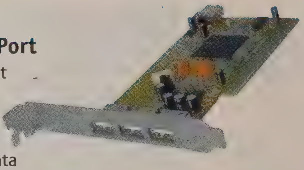


ISA I/O card providing two ultra high performance RS-232 serial ports & optimised for maximum data communication speeds of up to 921.6Kbps for use with modems and other serial peripherals.
XH6655 $48

### PC Cleaning Kit

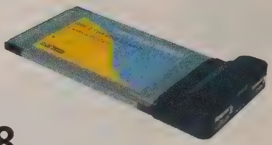
Ideal for keeping your PC clean and tidy. Contains 5 Ultraclene wet/dry sachet pairs, keyboard cleaning card, 10 screenclean wet/dry sachet pairs. 3.5" cleaning diskette and a 20ml cleaning fluid.
N 3105 $29.80

### PCI Card USB 2.0 - 4 Port



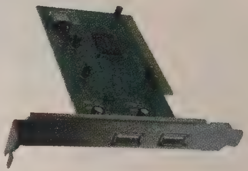
This card is one of the fastest USB cards which is fully compatible with the USB1.1 OHCI and USB2.0 ECHI specifications. It supports data speed up to 480 megabits per second. That's 40 times faster than USB1.1.
XH6738 $97

### CardBus Card USB 2.0 - 2Port



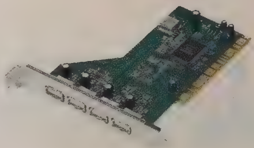
USB 2.0 Card-Bus PCMCIA Adapter 2-Port for Windows 98SE/ME/2000 XP and MacOS!
XH6739 $158

### 2 Port USB Card



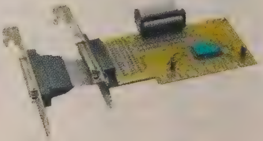
This PCI card provides 2x 12Mbps USB ports for both PC and MAC users. This card is directly supported by built-in drivers in the Windows 98SE, Windows Me, and Windows 2000 operating systems.
XH6646 $84

### 4 Port USB Card



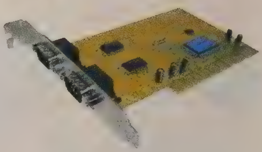
Adding USB to a MAC or PC couldn't be easier. This plug-n-play card is easy to install and requires no drivers. It gives your PC or MAC 4x 12Mbps USB ports ideal for video conferencing, printing, scanning, digital photography and other data intensive applications.
XH6667 $93

### 2-Parallel Port PCI



2 port. PCI.
XH6652 $93

### 2-Serial Port PCI



PCI I/O Card that supports two ultra high speed RS-232 16C650 UART serial ports. Optimised for maximum data communication speeds up to 921.6Kbps with modems and other serial peripherals.
XH6656 $98

### Antistatic Wrist Strap

A must for installing expansion cards, memory, drives, changing ICs, Etc. Helps prevent stray static charges which can destroy ICs in an instant.
X 2042 $21

new for 2002

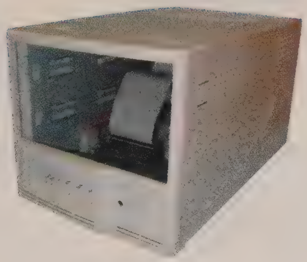
## ATX Case with 300w Power Supply

This ATX tower case is the ideal platform to build your new PC or upgrade your old. Includes 2 front USB ports, 4 x $5^{1}/_{4}$" External Bays and 2 external $3^{1}/_{2}$" bays (1 occupied with the included floppy drive) plus 1 internal $3^{1}/_{2}$" bay.
XH6755

**$147**

new for 2002

## CD Duplicator Case



The DSE CD Duplicator Case makes copying CDs a snap. This Standalone solution does not need a PC. With simple single touch buttons, it can duplicate CD's in minutes! Simply add a CDROM and CDWriter to complete the kit.
XH0379
**Case only**

**$497**

## IDE Removable Drive Bay

This robust 3.5" mobile rack & tray provides a removable hard drive solution. Supports all IDE and EIDE DMA/66 standards and is easy to install. A great way to move data to and from home and work!
XH5067

**$47**

## IDE Removable Drive Bay

This robust 3.5" bay even has a fan to ensure the tight operating space remains at a constant temperature to prevent overheating. Supports all IDE and EIDE DMA/66 standards and is easy to install.
Tray only.
XH5068

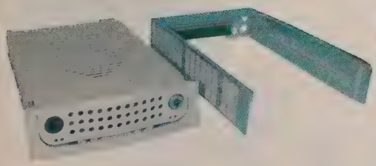
**$36**

## Cable 10P DIL to 2x USB

Add USB sockets to your PC. Many third party motherboards support USB but are not supplied with the necessary 10 pin DIL plug to 2x USB backpane - this is what you need. (May not suit all motherboards).
XH3243

**$15.30**

new for 2002



## IDE Mobile Rack ATA100

A robust mobile rack with aluminium mounting bracket for IDE drives. Secure and move data reliably and efficiently. Take your precious data with you.
XH6037

**$98**

new for 2002

## IDE Mobile Rack ATA100 Tray

A robust mobile rack tray for IDE drives. Secure and move data reliably and efficiently.
XH6038

**$78**

## Upgrade Assorted Screws

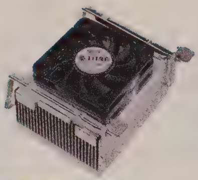
A handy pack of computer case, drive and motherboard mounting screws.
XH5058

**$5.70**

## Coolers & Case Accessories

### CPU Cooler Skt 478 2.4 S

Majesty cooler , for Intel Pentium IV Willamette Socket 478 up to 2.4 GHz
XH6432 $53



### CPU Cooler Skt 478 2.4 B

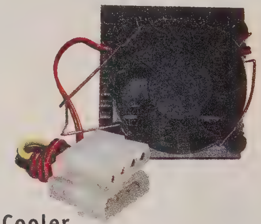
CPU Cooler, only for Intel Pentium IV Socket 478 CPU up to 2.4 GHz
XH6433 $32

### CPU Cooler Skt A 1.7 SLV

CPU cooler, for all Intel PIII Coppermine & Tualatin, Celeron & CeleronII, AMD Duron / Thunderbird (Socket A / 462) up to 1.7 GHz, Athlon XP 1800+
XH6434 $32

### CPU Cooler Skt A 1.7 BB

Majesty cooler, Twin fan for all Intel PIII Coppermine & Tualatin, Celeron & CeleronII, AMD Duron / Thunderbird (Socket A / 462) up to 1.7 GHz, Athlon XP 1800+
XH6435 $53

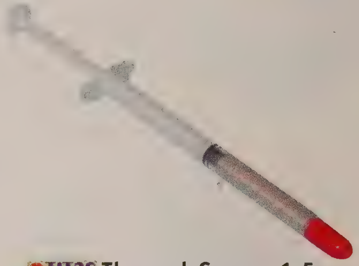


### CPU Cooler

Suits 586 Pentium. Essential cooling fan for all Pentium CPUs to avoid overheating.
X 7707 $15

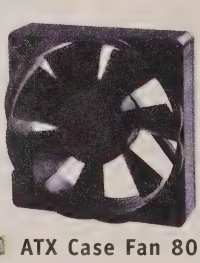
### Chipset Cooler

Majesty Cooler, Heat sink with fan for VGA cards or Chipsets
XH6436 $24



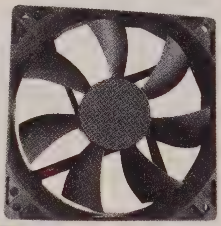
### Thermal Grease 1.5g

High effect Thermal Grease, Silver Thermal Compound.
N 1208 \$5$^{90}$



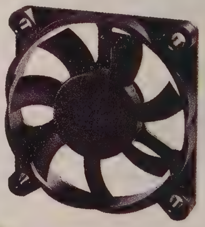
### ATX Case Fan 80mm

80mm ATX case fan ideal for those who overclock their CPU or for PC's running as a server.
XH6437 $21



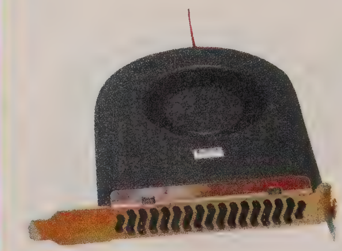
### ATX Case Fan 120mm

120mm ATX case fan ideal for those who overclock their CPU or for PC's running as a server.
XH6438 $28



### ATX Case Fan 60mm

60mm ATX case fan ideal for those who overclock their CPU or for PC's running as a server.
XH6439 $20

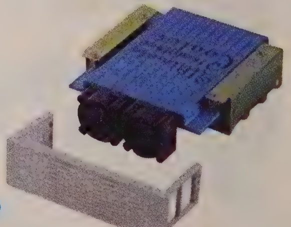


### System Cooler

Is your PC running hot? Simply add this slot extractor fan to cool things down.
XH5088 $19

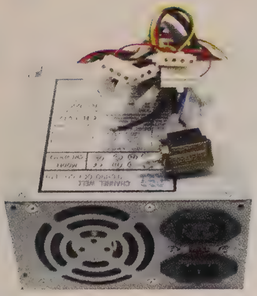
### Internal System Cooler

Extend your system life and reliability, movable design, adjust the proper position for best performance. Simply install this internal fan assembly to cool things down.
XH5090 $28



### 5.25" Cooler

Is your Hard Drive running hot? Simply install this Hard Drive Cooler to cool things down. Features: Double 40 x 40 x 20 mm high performance DC fans, Reduce the hard disk drive operating temperature up to 40%.
XH5092 $46

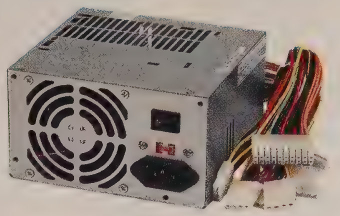


### 230W Power Supply

230W AT supply. Features: 115 or 230V Switchable AC Input (Factory set to 230V), 230W Max DC total output, +5V - 23A Max, +12V - 9A Max, -5V - 0.5A Max, -12V - 0.5A Max, 3x 5.25" DC Sockets, 2x 3.5" DC Sockets, front panel ON/OFF switch and IEC lead.

XH7030

**$78**

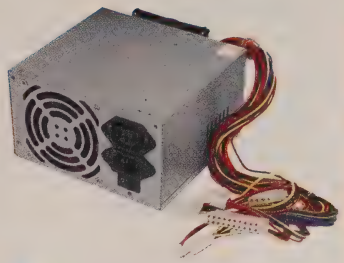


### 250W Power Supply

250W ATX supply. 115 or 230V Switchable AC Input (Factory set to 230V), 250W Max DC total output, +5V - 23A Max, +12V - 9A Max, -5V - 0.5A Max, -12V - 0.5A Max, 3x 5.25" DC Sockets, 2x 3.5" DC Sockets, front panel ON/OFF switch and IEC lead.

XH7029

**$88**

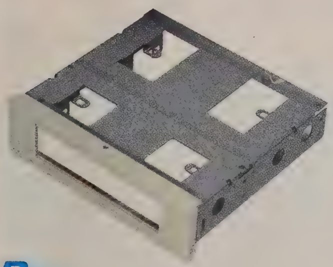


### 300W Power Supply

Provides up to a massive 20A @ on the 5V rail and up to 14A on the 3.3v rail. Not only has this power supply got the current, it's got the cooling as well - 2x cooling fans ensure heat is moved out of your PC! An overclockers' delight! Universal AC Input: 115/230VAC, 10A/6A, 60/50Hz, Maximum Wattage: 300W.

XH6903

**$118**



### Drive Mount Kit 3.5" FDD

This mounting kit is ideal for mounting 3.5" devices that need external disk access into a 5.25" drive bay - like Zip, LS120, etc.

XH5063

**$6.80**

### Drive Mount Kit 3.5" HDD

Ideal for mounting internal hard drives in the 5 1/4" slots in your PC.

XH5062

**$8.70**

### 400W ATX Power Supply

This big 400W power supply is just what you need for those BIG AMD and Intel processors.

XH6906

**$138**

### Upgrade Case Screws

Pack of 20x M6 case screws which allow you to remove them by hand.

XH5059

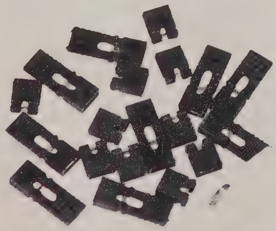
**$4.20**

### Cooler Controller + LCD

You can now simultaneously gauge the temperature, monitor voltage, and monitor the fans of up to eight different system devices. These units safeguard your system from overheating and protect you from losing valuable data or hardware.

XH6403

**$164**



### Motherboard Jumpers

A handy pack of jumpers that suit motherboards, I/O cards and drives.

XH5046

**$2.80**

## UNINTERRUPTIBLE POWER SUPPLIES (UPS)

A UPS protects personal computers against power failures and power disturbances. A computer expects to receive 230 volts AC from the power grid, most computers can tolerate slight differences from this specification, but significant deviation will cause the computer's power supply to fail. A UPS generally protects your computer against 3 different power problems:

**1.** Voltage surges and spikes – times when the voltage on the line is greater than it should be.

**2.** Voltage sags – times when voltage on the line is less than it should be.

**3.** Total power failure – times when a line goes down or a fuse blows somewhere on the grid or in the building.

Each of the UPS's in our range allows a computer to run off normal utility power until it detects a problem. At that point it almost instantaneously turns on a power inverter and runs the computer off the UPS's inbuilt battery, providing the 230 volts AC required by the computer to maintain operation allowing the operator to continue working or save data and shut down operation in a controlled fashion.

### Centralion Compact-Fit 400 UPS

This ultra compact 400VA UPS offers protection against power cuts, its superior design allows a standard domestic computer to maintain operation for 5 to 20 minutes (depending on screen size and load requirements), enabling the operator sufficient time to save valuable data. Comes complete with Automatic Voltage Regulator (AVR), which protects your computer against brownouts, sags, and other voltage irregularities and automatic shut down software that is compatible with Windows and most other popular operating systems.
M 7695

- Capacity: 400VA
- Input Voltage: 230/240V AC
- Input Frequency: 50Hz
- Output Voltage: 230/240V AC
- Output Frequency: 50Hz
- Dimensions (WxHxD)mm: 180x60x315
- Weight (Kg): 6
- Back Up Time: 5-20 min

Compact Fit

**$249**

### UPS Blackout Buster B5 500VA

A cost effective entry level version of the Blackout Buster. 500VA capacity makes it ideal for small office/home office applications, protecting your valuable equipment from power blackouts, spikes and severe low/high voltages. Incorporates fax/modem spike protection. Offers approximately 15 minutes operation for typical Pentium computers.
M 7698

- Capacity: 500VA
- Input Voltage: 230V AC
- Input Frequency: 50Hz
- Output Voltage: 230V AC
- Output Frequency: 50Hz
- Dimensions (WxHxD)mm: 96x217x227
- Weight (Kg): 3.9
- Back Up Time: 7-20 min

BLACKOUT BUSTER

**$329**

### Blackout Buster 500VA Expandable UPS - B10E

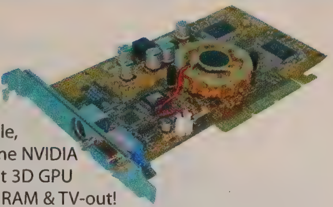
Featuring a compact, stylish design the 500VA BlackOut Buster is more than a match for the most severe power disturbances. The unit not only protects against power blackouts and spikes, it also smoothes the power by boosting or trimming incoming voltages to ensure that your essential equipment is totally protected.
M 7618

- Capacity: 500VA
- Input Voltage: 230V AC
- Input Frequency: 50Hz
- Output Voltage: 230V AC
- Output Frequency: 50Hz
- Dimensions (WxHxD)mm: 96x217x215
- Weight (Kg): 5.5
- Back Up Time: 7-20 min

BLACKOUT BUSTER

**$429**

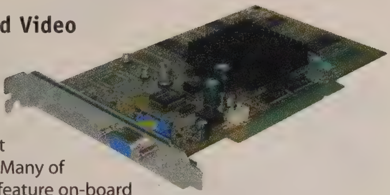
## AGP Card GeForce4 MX440



This super-fast, affordable, graphics card features the NVIDIA GeForce4 MX440 256-bit 3D GPU with 64MB 128-bit DDR RAM & TV-out! Requires free AGP slot & Windows 9x, Me, XP, 2000 or Linux. Includes OEM versions of AquaNox & MDK2 games.
XH6697

**$298**

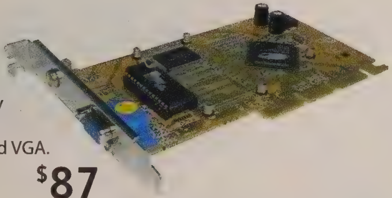
## PCI Card Video MX200 32MB



Ideally suited to users who need high quality 3D graphics but don't have an AGP slot. Many of these computers feature on-board video graphics (Trident CyberBlade, Etc) which can often be disabled by the system BIOS.
XH6744

**$194**

## 4MB AGP Card ATI Rage Pro



ATI RAGE Mobility with 4MB SGRAM memory on-board VGA.
XH6665

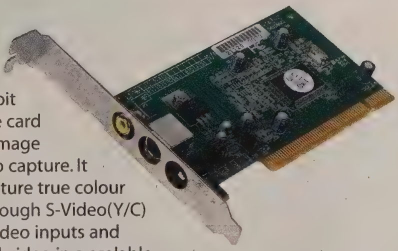
**$87**

## PCI 4Mb Video Card

Looking for a good quality PCI Video Card? Then look no more. This card features the SiS 6326 video chip, is easy to install and with 4MB of memory, is ideal for normal 2D applications.
XH6601

**$97**

## PCI Video Capture Card

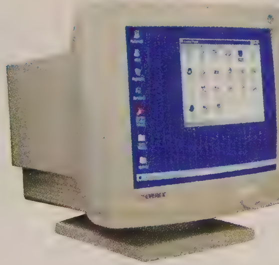


This low cost 32-bit PCI video capture card is ideal for both image and motion video capture. It allows you to capture true colour video sources through S-Video(Y/C) and composite video inputs and displays captured video in a scalable window on your PC.
XH6594

**$104**

EVEREX

## 19" Monitor

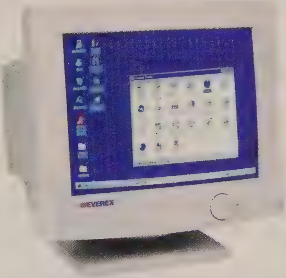


19" Colour Monitor with one-touch on screen display (OSD). Supports resolutions up to 1600x1200. Sharp 0.25mm dot pitch. Supplied with 3 year warranty.
XC6098

**$568**

EVEREX

## 17" Monitor



17" Colour Monitor with one-touch on screen display (OSD). Supports resolutions up to 1280x1024. Sharp 0.27mm dot pitch. Supplied with 3 year warranty.
XC6099

**$409**

hp invent

## 17" Monitor MX70

HP 17" Multimedia Monitor. 15.8" viewable area.
XC6074

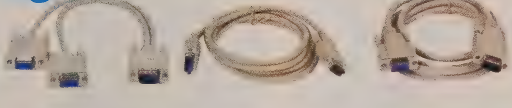
**$567**

hp invent

## 15" Monitor V40

HP 15" Multimedia Monitor. 13.8" viewable area.
XC6103

**$437**



| | | |
|---|---|---|
| **DSE VGA Y Adaptor** | | |
| VGA Y Adaptor | XH4242 | **$15.20** |
| **VGA Monitor Cable 2 metres** | | |
| 15 Pin male - 15 Pin male | X 8405 | **$26.10** |
| **VGA Monitor Extension Cable 2 metres** | | |
| 15 Pin male - 15 Pin female | X 2603 | **$26.10** |

## PC Sounds Cards & Microphones

**Budget Multimedia Microphone**

A convenient, quality stick on mic that can be placed anywhere on your PC. Suitable with most sound cards.

X 6067 **$10.30**

**Jensen Headset Mic**

Ideal for Internet telephony, gaming and voice recognition software.

XH4745 **$31**

**Jensen Desktop Mic**

Ideal for Internet telephony, gaming and voice recognition software. Stands on your desktop or mounts to your monitor.

XH4746 **$37**

PLANTRONICS

**Headset Microphone SR1**

Ideal for home and office communications, including speech recognition, Internet telephony, and conferencing.

XH4689 **$94**

PLANTRONICS

**Headset Microphone LS1**

Stereo headset and microphone ideal for speech recognition, Internet telephony, listening to CDs, and playing games...

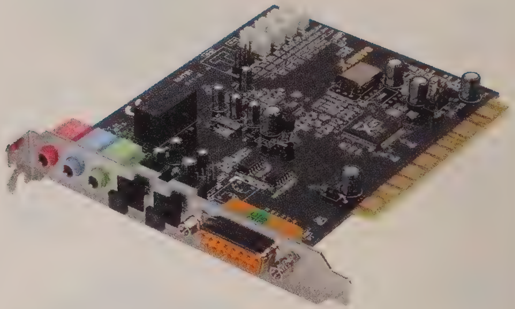
XH4690 **$141**

PLANTRONICS

**Headset Microphone HS1**

Professional stereo headset and microphone with lightweight, rugged design and stowable microphone boom.

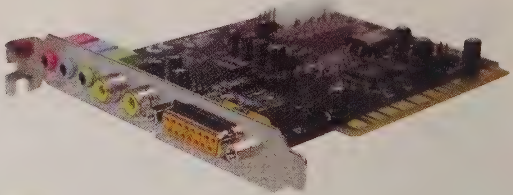
XH4688 **$187**



**Digital Sound Card - Optical**

PCI Compliant digital sound card utilising Yamaha YMF754 chipset. Includes hardware acceleration, Direct sound support, 64 voice XG Wavetable Synthesizer, 3D and Positional 3D support and full Soundblaster/Soundblaster Pro compatability.

XH6686 **$129**



**Digital Sound Card - RCA**

PCI Compliant digital sound card utilising Yamaha YMF754 chipset. Includes hardware acceleration, Direct sound support, 64 voice XG Wavetable Synthesizer, 3D and Positional 3D support and full Soundblaster/Soundblaster Pro compatability.

XH6687 **$129**

**PCI Sound Card - XW7000**

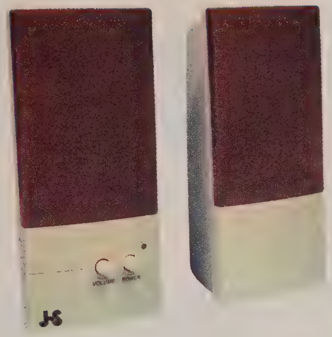
32-bit PCI DuplexsSound card supports 5.1 channel HRTF-based 3D positional audio. SoundBlaster, SoundBlaster Pro, DirectSound & DirectMusic compatible. Uses C-Media 8738 chipset & includes drivers for Windows 9x, Me, 2000, XP, NT4.0, DOS, Linux & BeOS.

XH7847 **$73**

### Jazz Speakers Vision 1

Vision 1 with advanced 3D surround technology adds awesome audio depth and dimension to any computer or game console system. 360 watts PMPO, 3" full range drivers, Advanced 3D Surround, 3.5mm Audio Input, Subwoofer Output, Headphone Output, Magnetically Shielded, 120 x 256 x 121mm (WxHxD).
XH7813

**$67**



### Speakers J1116A

A good pair of speakers to enjoy great sound from your PC. 2.4 watts RMS, compact stylish design, and they are magnetically shielded.
XH7843

**$31**

### Jazz Speakers Vision 2

Vision 2 with advanced 3D surround technology adds awesome audio depth and dimension to any computer or game console system. 400 watts PMPO, 3" full range drivers, Advanced 3D Surround, 3.5mm Audio Input, Headphone Output, Magnetically Shielded, 120 x 256 x 121mm (WxHxD).
XH7814

**$88**

### Jazz Speakers Rebel 2.1 Subwoofer System

Add power, style and performance to any PC with the REBEL 2.1 subwoofer system. The 700 watts REBEL 2.1 reproduces low bass frequencies adding powerful and deep audio to the PC.
XH7833

**$141**

### Jazz Speakers Rocco 5.1

Designed for games consoles, PC's, PC DVD-ROM and DVD Players. ROCCO 5.1 decodes and outputs real 5.1 digital audio with movie theatre quality sound. Built-in decoder for 5.1 Dolby Digital, Dolby Pro Logic, and standard 2-channel stereo.
XH7834

**$494**

dts DIGITAL OUT

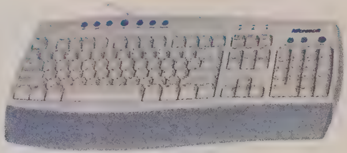
DOLBY DIGITAL

DOLBY SURROUND PRO LOGIC II

Now with DTS support

# *Keyboards & KVM Switch*

**Microsoft**

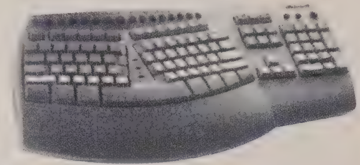


### Internet Keyboard

The Internet Keyboard has 10 Hot Keys on a comfortable standard design that also includes a detachable palm rest. The Hot Keys allow you to browse the web, or check e-mail directly from your keyboard.

XH3649 **$87**

**Microsoft**

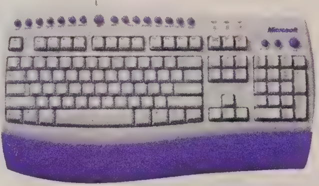


### Natural Keyboard Pro

Provides Internet, e-mail, and multimedia Hot Keys along with the powerful IntelliType software. Design improvements include two USB ports, 19 Hot Keys - two of which are easily customisable using the IntelliType software, and the Sleep Hot Key which suspends your computer at the touch of a button.

XH3419 **$179**

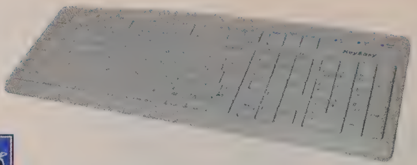
**Microsoft**



### Internet Keyboard Pro

Quick access, complete control. 19 Hot Keys and 2 USB ports in a comfortable keyboard design that also includes a detachable palm rest. Hot Keys allow you to browse the web, check e-mail, or play a CD directly from your keyboard.

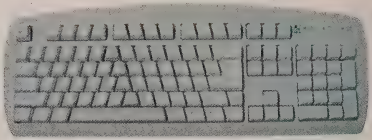
XH3422 **$139**



### Internet/Multimedia Keyboard KB-5

A4tech Multimedia KB-5 is a vintage keyboard with state-of-the-art design. Go Surfing with A4 Tech's Internet Keyboard. Gain One Touch Access to the Internet, Email, Office and all your favourite programs. Nothing could be easier or more comfortable.

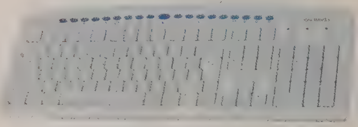
XH3437 **$23**



### Anti-RSI Health Keyboard KBS-6

The Anti-RSI health Standard keyboard is superiorly designed for preventing Repetitive Strain Injury and maximum comfort. This innovative "A-shape" look-alike key layout introduces a breakthrough from the traditional key layout.

XH3435 **$28**

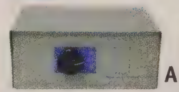


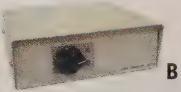
### Internet Keyboard KB-7

Experience complete, customisable control with your keyboard thanks to this A4 Internet Multimedia keyboard.

XH3436 **$38**

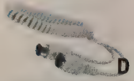
## MANUAL SWITCH BOXES





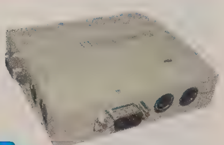
| | | | |
|---|---|---|---|
| A. | DSE KVM Switch | XH4504 | $34 |
| B. | DSE Printer Switch Box - 2 Way | X3579 | $32 |
| C. | DSE Printer Switch Box - 4 Way | X3586 | $44 |

## KEYBOARD ADAPTORS & CABLES



| | | | |
|---|---|---|---|
| A. | Adaptor Keyboard AT-PS/2 | X 8207 | $11 |
| B. | Adaptor Keyboard PS/2-AT | X 8222 | $11 |
| C. | PS/2 'Y' Adaptor | XH3266 | $24 |
| D. | Cable Keyboard 5P DIN M-F | X 2600 | $19 |

## KVM SWITCH AUTO

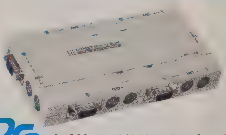


### 2 Way KVM Switch

Control 2 PCs using just 1 keyboard, mouse and monitor.

XH4505 **$214**

Includes cables



### 4 Way KVM Switch

Control up to 4 PCs by using just 1 keyboard, mouse and monitor.

XH4507 **$288**

Cables not included

### KVM Cable Set 1.8m

Suitable for use with automatic DSE KVM switch box.

XH3276 **$29.10**

### KVM Cable Set 3m

Suitable for use with all DSE Auto KVM switch boxes.

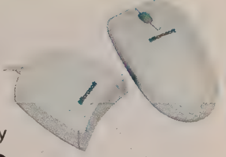
XH3277 **$46.10**

**Microsoft**

### Cordless Wheel Mouse

The Microsoft Cordless Wheel Mouse gives you reliable cordless freedom. Use your mouse anywhere because there's no cord to tangle or clutter your desk. With digital multi-channel radio technology, you can depend on accuracy - anywhere!

XH1908 **$99**



**Microsoft**

### IntelliMouse Explorer

IntelliMouse Explorer throws out all the old, mechanical technology used in current mice. IntelliMouse Explorer uses a new optical sensor called IntelliEye which scans the surface beneath the mouse 1500 times per second to track the smallest motion.

XH1858 **$153**

### Microsoft Trackball Optical

The TrackBall Explorer sets a new standard in trackballs by combining an IntelliEye optical sensor with advanced ball design. The IntelliEye optical sensor tracks the movement of the ball 1,500 times per second to give you unbelievably precise control.

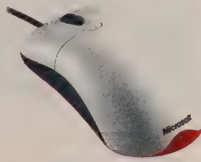
XH1890 **$122**

**Microsoft**

### Optical Wheel Mouse

The small rubber ball in the bottom of your mouse can pick up dust and lint that hurt performance. IntelliEye optical technology replaces the mouse ball with an optical sensor that has no moving parts to get dirty. IntelliEye optical technology gives you a new level of control and precision, and you'll never need to clean a mouse ball again.

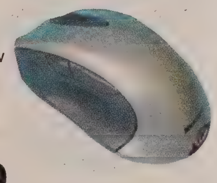
XH1878 **$89**



### Microsoft Wireless IntelliMouse Explorer

Wireless IntelliMouse Explorer is supercharged with Microsoft Corp.'s new proprietary IntelliEye optical technology and breakthrough power-saving technologies, offering unprecedented performance, accuracy and control.

XH1896 **$199**



### Fast Mouse

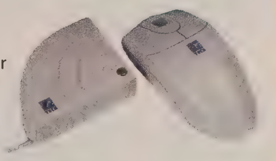
Comfortable 2 button, PS/2 style mouse for use with most PC's.

XH1864 **$28**

### Radio Frequency Mouse

The Radio Wireless mouse performs better than a traditional mouse, but without a cable to clutter your desk. Never experience interrupted signals, communication delays or loss of control. Use this mouse anywhere - don't worry about being forced to stay in the same spot by desk-cluttering cables.

XH1891 **$57**



### Optical Scroll Mouse

Enjoy optical precision with this sleek and efficient 5 Button Programmable Mouse.

XH1893 **$57**

### Scroll Mouse SWW-35

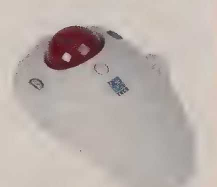
A4 520dpi Wheel Scroll Mouse with programmable wheel button functions...

XH1899 **$38**

### Trackball Mouse

The 3 button, 2 wheel dual wheel scrolling technology mouse is MS-Intellimouse compatible and has easy scrolling with up/down and left/right capability. 1 programmable button. Zoom and auto-scroll in Office 97. Windows 3.1/95/98/NT driver included.

XH1866 **$51**



## MOUSE EXTENSION CABLES

### Cable PS/2 2m Extension

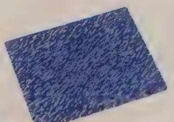
Male to Female 2m Extension.

X2601 **$19.40**

### 2m Serial Mouse Extension Cable

X2610 **$18.20**

## MOUSE PADS

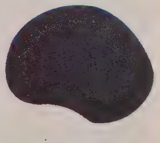


### Precise Mouse Pad

Blue.

XH5000 **$8**

### Mouse Pad Wrist Rest

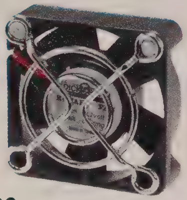


Designed to eliminate any strain on your wrist.

XH5021 **$28**

# *Fans & Mains Leads*

## 12V DC FANS

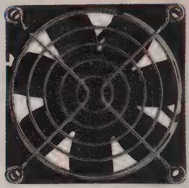


### 12V DC Fan

- Size: 40 x 40 x 10mm
- Voltage: 12V DC
- Current: 0.12 Amp
- Speed: 8400 RPM
- 8.3 CFM
- Static pressure: 0.19 Inch-H2O
- Noise: 34 dBA
- **Bearing type: Ball**

Y 8496

$26.30



### 12V DC Fan

- Size: 80 x 80 x 25mm
- Voltage: 12V DC
- Current: 0.22 Amp
- Speed: 3200 RPM
- 42.5 CFM
- Static pressure: 0.23 Inch-H2O
- Noise: 36.5 dBA
- **Bearing type: Ball**

Y 8497

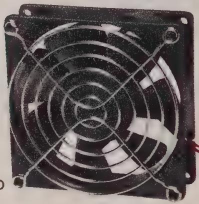
$36.20

### 12V DC Fan

- Size: 80 x 80 x 25mm
- Voltage: 12V DC
- Current: 0.22 Amp
- Speed: 3200 RPM
- 41.7 CFM
- Static pressure: 0.18 Inch-H2O
- Noise: 34 dBA
- **Bearing type: Sleeve**

Y 8507

$33.50



### 12V DC Fan

- Size: 92 x 92 x 25mm
- Voltage: 12V DC
- Current: 0.25 Amp
- Speed: 2800 RPM
- 50 CFM
- Static pressure: 0.19 Inch-H2O
- Noise: 34.5 dBA
- **Bearing type: Ball**

Y 8498

$33.90

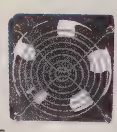
### 12V DC Fan

- Size: 120 x 120 x 38mm
- Voltage: 12V DC
- Current: 0.257 Amp
- Speed: 3100 RPM
- 108 CFM
- Static pressure: 0.31 Inch-H2O
- Noise: 42 dBA
- **Bearing type: Ball**

Y 8499

$36.80

## 230V AC FANS

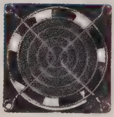


### 230V AC Fan

- Size: 80 x 80 x 25mm
- Voltage: 240V DC
- Current: 0.07 Amp
- Speed: 2300 RPM
- 17 CFM
- Static pressure: 0.12 Inch-H2O
- Noise: 29 dBA
- **Bearing type: Sleeve**

Y 8505

$35.30

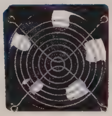


### 230V AC Fan

- Size: 80 x 80 x 25mm
- Voltage: 240V DC
- Current: 0.07 Amp
- Speed: 2450 RPM
- 18 CFM
- Static pressure: 0.13 Inch-H2O
- Noise: 30 dBA
- **Bearing type: Ball**

Y 8495

$35.80

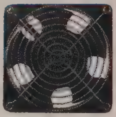


### 230V AC Fan

- Size: 120 x 120 x 38mm
- Voltage: 240V DC
- Current: 0.125 Amp
- Speed: 2550 RPM
- 85 CFM
- Static pressure: 0.25 Inch-H2O
- Noise: 43 dBA
- **Bearing type: Sleeve**

Y 8500

$34.95



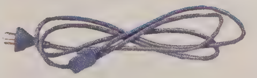
### 230V AC Fan

- Size: 120 x 120 x 38mm
- Voltage: 240V DC
- Current: 0.125 Amp
- Speed: 2750 RPM
- 87 CFM
- Static pressure: 0.26 Inch-H2O
- Noise: 45 dBA
- **Bearing type: Ball**

Y 8490

$36.80

## IEC MAINS LEADS



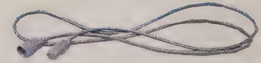
### IEC Mains Lead

Approved 2-metre mains lead with standard 3-pin plug on one end and 3-pin IEC socket on the other. As used on most computers and communications equipment.

10 amp rated.

W 1362

$10.60

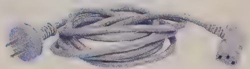


### IEC Male/Female Extension Lead

Quality 2-metre extension lead. Ideal for connecting printer or monitor to your computer.

W 1366

$12.95

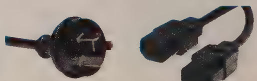


### IEC Mains Lead - Right Angle

Approved 2 metre mains lead similar to our standard IEC lead (W-1362), but with a right angle IEC socket. Ideal for situations where lack of space behind equipment prevents use of a standard straight IEC mains lead. 10 amp rated.

W 1375

$14.95



### Dual IEC Mains Lead

A unique 2 metre long mains lead with a pin mains plug on one end and two IEC sockets on the other. Run your PC and monitor from the one powerpoint - ideal for saving space on cluttered powerboards.

W 1352

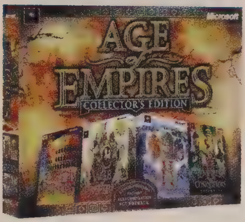
$14.95

## MICROSOFT

**Age of Empires: Collectors Edition**

This bundle includes Age of Empires: Gold Edition, containing the original Age of Empires and Age of Empires: The Rise of Rome Expansion, plus Age of Empires II: The Age of Kings and Age of Empires II: The Conqueror's Expansion.

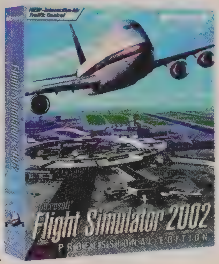
XS2299 (G) **$149.95**


AGE of EMPIRES
COLLECTOR'S EDITION
Microsoft

**Flight Simulator 2002 Professional Edition - PCCD**

The latest version of Microsoft's highly realistic aviation simulation - the best-selling PC flight simulation ever produced. FS2002 introduces many exciting features, including interactive air traffic control (ATC) and auto-generated scenery.

XS2427 (G) **$119**


Microsoft
Flight Simulator 2002
PROFESSIONAL EDITION

## ELECTRONIC ARTS

**Command & Conquer: Renegade - PCCD**

A fast-paced 3D action game set in the gripping Command & Conquer universe. For the first time, experience the C&C universe up-close and personal as you fight it out on the ground among the structures, vehicles and weapons made famous in the original C&C.

XS2447 (R16) **$99.95**

COMMAND & CONQUER
RENEGADE
EA

**The Sims: Collectors Edition**

3 games in the one boxed package! Includes The Sims plus the 2 add-on packs: Living Large and House Party. A new kind of strategy game that really hits close to home!

XS2372 (M15+) **$99.95**

The SIMS
COLLECTORS EDITION
EA

## SIERRA

**Half-Life Counter Strike**

Online version of the hit game Half-Life. Play in a team with other gamers over the Internet, and choose either to be a terrorist, or anti-terrorist.

XS1192 (Yet to be classified)

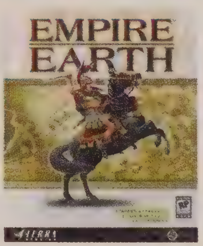
**$69.95**

HALF-LIFE
COUNTER-STRIKE
VALVE

**Empire Earth - PCCD**

Empire Earth a real-time strategy game that lets you control the destiny of a fledgling civilization through 500,000 years of human history. Choose any point in time and establish a civilization to transcend the ages and dominate the earth.

XS2448 (M15+) **$109.95**


EMPIRE EARTH
SIERRA

## ACCOUNTING

**Quicken Personal Plus 2002 - PCCD**

Its time to get personal... Quicken is the world's best selling personal finance management software. Quicken helps you to make better financial decisions by glancing at your finances at a push of a button.

XS5712 **$139.95**

Quicken Easy
Personal
PLUS
2002
Your Money Management made Easy

**Quicken Business V7 - PC**

All the features of Quicken Deluxe, plus the Small Business User Guide and WorkFlow Manager.

XS4874

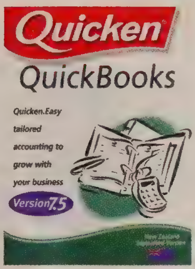
**$199**

Quicken
For BUSINESS
Organises your money while you look after your business
Get rich, slowly
dataflow

**Quick Books 7.5 Accounting Package - PCCD**

Quick Books 7.5 the latest release of the world's best selling small business accounting and management software. New Zealand accountants recommend Quick Books.

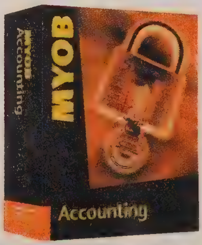
XS5699 **$549.95**


Quicken
QuickBooks
Quicken.Easy tailored accounting to grow with your business
Version 7.5

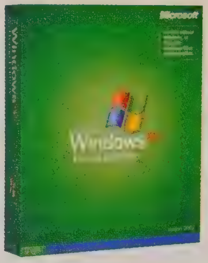
**MYOB Accounting V10**

MYOB Accounting V10 provides you with flexibility, power and ease of use. You will have total control over all your GST, stock, debtors and creditors. MYOB connects you with your accountant.

XS5702 **$395**


MYOB
Accounting

# Productivity Software



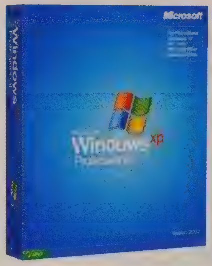
**Microsoft**

### Windows XP Home Edition - PCCD

Microsoft Windows XP Home Edition is the next version of the Windows operating system, which is designed exclusively for home computing. Windows XP Home Edition puts the exciting experiences of the digital age at your fingertips.

XS6085 **$599**

U/G XS6084 **$309**



**Microsoft**

### XP Professional Edition - PCCD

Microsoft Windows XP Professional is the next version of the Windows operating system, which is designed for businesses of all sizes, and for individuals who demand the most from their computing experience.

XS6087 **$889**

| | | |
|---|---|---|
| U/G | XS6086 | **$599** |
| Academic | XS6088 | **$249** |

**Microsoft**

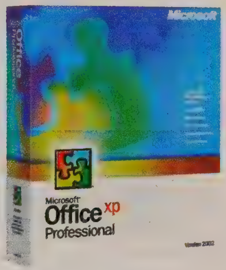
### Office XP Standard

The Office suit designed for users requiring only a core set of desktop productivity tools. Office XP Standard includes:

- Microsoft Word version 2002
- Microsoft Excel version 2002
- Microsoft Outlook version 2002
- Microsoft PowerPoint version 2002

XS5641 **$1399**

| | | |
|---|---|---|
| U/G | XS5642 | **$689** |
| Academic | XS5661 | **$389** |



**Microsoft**

### Office XP Professional

Includes Microsoft Access to help users manage their business information. Office XP Professional includes:

- Microsoft Word version 2002
- Microsoft Excel version 2002
- Microsoft Outlook version 2002
- Microsoft PowerPoint version 2002
- Microsoft Access version 2002

XS5643 **$1659**

| | | |
|---|---|---|
| U/G | XS5644 | **$969** |
| Academic | XS5662 | **$479** |

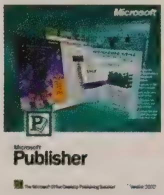
**Microsoft**

### FrontPage 2002 - PCCD

A website creation and management tool, giving users everything they need to easily create and manage great websites.

XS5658 **$489**

Academic XS5680 **$199**

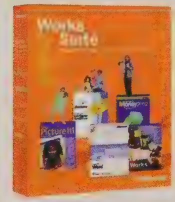


**Microsoft**

### Publisher 2002 - PCCD

Helps you easily create, customise, and publish materials such as newsletters, brochures, flyers, catalogues, and websites. Publish easily on your desktop printer, at a copy shop or commercial printer, or directly to the web.

XS5656 **$359**

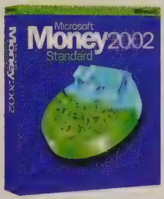


**Microsoft**

### Works Suite 2002 - PCCD

Works Suite 2002 combines five complete products, including the latest and complete version of Microsoft Word, for one great value price. Works Suite is the easiest way to get and use all the software you really need for your home PC.

XS6837 **$299**

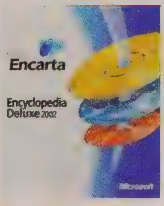


**Microsoft**

### Money 2002 - PCCD

Money 2002 is an easy-to-use personal finance management software application that helps you manage your personal finances, including balancing your checkbook, budgeting, reducing debt, planning for the future, and managing your investments and taxes.

XS6754 **$89**

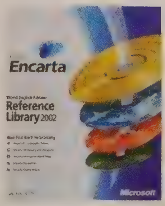


**Microsoft**

### Encarta 2002 Deluxe - PCCD

Microsoft Encarta Encyclopedia Deluxe 2002 is the complete, easy to use multimedia encyclopedia for school, home or work! You'll find thousands of in-depth articles organised by topic, making it quick and & easy to find just the information you want.

XS6815 **$99**



**Microsoft**

### Encarta Reference Library 2002 - PCCD

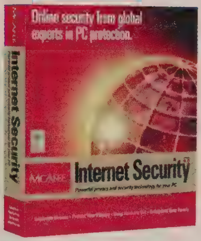
Microsoft Encarta Reference Library 2002 is a comprehensive research and reference source. From a single search, Encarta gives you access to a world of information. It engages learners with more up-to-date information and multimedia than ever before.

XS6808 **$199**

## McAFEE

### McAfee VirusScan 6.0 - PCCD

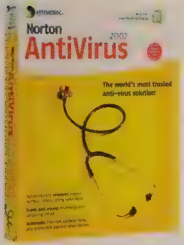
McAfee VirusScan detects and removes all types of known viruses from sources including e-mail attachments, Internet downloads, shared disks, CD-ROMs, and synchronisation with your PDA.
XS6830 $119.95



### McAfee Internet Security 4 - PCCD

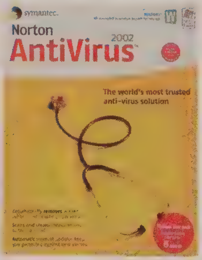
McAfee Internet Security is one of the most comprehensive set of privacy enhancing and security protecting tools you can buy. Includes Antivirus and Firewall.
XS6832 $139.95

## NORTON



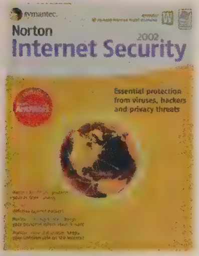
### Norton Antivirus 2002 V8.0 - PCCD

Norton AntiVirus is the world's most trusted anti-virus solution. Now it repairs common virus infections automatically, without interrupting your work. Protect your PC today with award-winning Norton AntiVirus!
XS6817 $129



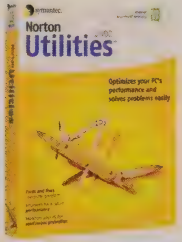
### Norton AntiVirus 5 User Pack - PCCD

Norton AntiVirus is the world's most trusted anti-virus solution. Now it repairs common virus infections automatically, without interrupting your work. Protect your PC today with award-winning Norton AntiVirus!
XS6844 $399



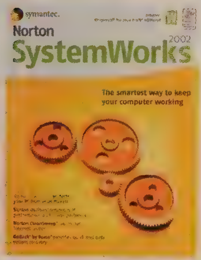
### Norton Internet Security 2002 - PCCD

Norton Internet Security 2002 is your essential protection from viruses, hackers, and privacy threats. It protects you and your PC when you email, bank, shop, or play online.
XS6818 $169



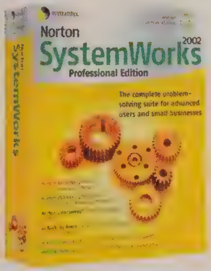
### Norton Utilities 2002 - PCCD

Norton Utilities 2002 optimises your PC's performance and solves computer problems easily. You can organize your hard drive files efficiently for faster access and greater stability with SpeedDisk, plus much, much more...
XS6822 $119



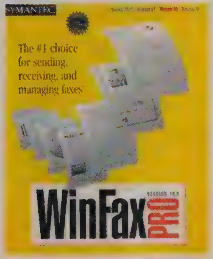
### Norton SystemWorks 2002 - PCCD

Norton SystemWorks 2002 makes it easy to keep your PC running efficiently. With a single click, you can launch the One-Button Checkup and run an entire battery of tests to identify and fix problems.
XS6819 $179



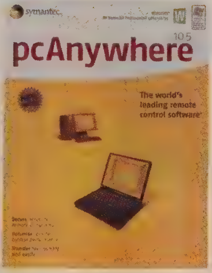
### Norton SystemWorks 2002 Professional - PCCD

Norton SystemWorks 2002 Professional Edition is the complete problem-solving suite for advanced users and small businesses. It protects your PC against virus threats, optimises performance, and much more. Supports Windows XP.
XS6820 $239



### Norton WinFax Pro 10.2 - PCCD

WinFax PRO is the #1 choice for sending, receiving and managing faxes. New features in version 10.2 let you send and forward faxes via email; send photo-quality faxes; and store incoming and outgoing faxes in the folders of your choice.
XS6027 $189



### PC Anywhere 10.5 - PCCD

PC Anywhere 10.5 is certified by Microsoft as Designed for Windows XP. PC Anywhere is now compatible with all Microsoft 32-bit platforms, so you can connect to any PC Anywhere host computer, regardless of which version of Windows is running.
XS6847 $349

## Budget Software

**RED ANT [ENTERPRISES]**

*The Red Ant range is a selection of highly popular gaming titles ranging from action/adventure to war tactics and flight simulators.*

$^{\$}14^{90}$-$^{\$}29^{90}$

PC CD ROM
BIG BYTES
G

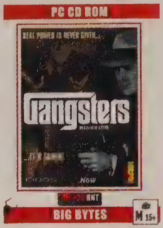
XS2459
(G)

PC CD ROM
TOMB RAIDER
BIG BYTES
M 15+

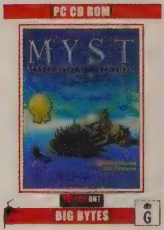
XS0117
(MIS+)

PC CD ROM
COMMANDOS
BIG BYTES
M 15+

XS2497
(MIS+)


PC CD ROM
Gangsters
BIG BYTES
M 15+

XS2501
(MIS+)

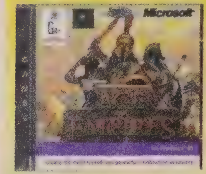

PC CD ROM
MYST
BIG BYTES
G

XS2502
(G)

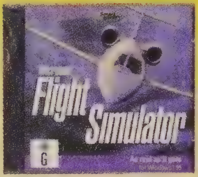
**Smart Saver™**

*The Softkey Smart Saver range is an extensive range of educational and gaming software, for adults and children alike.*

$^{\$}19^{90}$



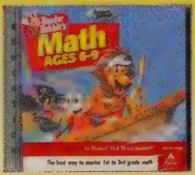
XS0033
(G8+)


Flight Simulator
G

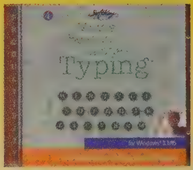
XS7785
(G)

Treasure Cove!

XS7596
(G)


Math
AGES 6-9

XS3402
(G)



X 8845
(G)

**EXPERT SOFTWARE**

*The Expert range caters for all ages with a series of gaming titles, as well as educational and design software.*

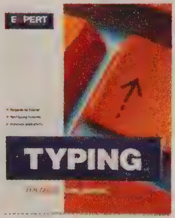
$^{\$}17^{90}$-$^{\$}19^{90}$

EXPERT
PREMIER CLIP ART
10,000
Amazing Color, Amazing Quality, Amazing Possibilities!

XS7897

EXPERT
GREETING CARD MAKER
Personalized Greeting Cards with a Professional Card Shop Look.

XS7894


EXPERT
TYPING

X 2584

EXPERT
CHAMPIONSHIP CHESS
Play Like a Champ in Stunning 3D Graphics!

X 2493

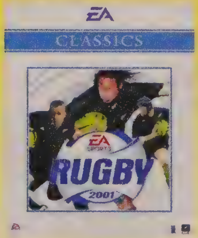
EXPERT
Over 2 Million Sold
HOME DESIGN 3D
Design Your Dream Home in 3-D Realism!

X 2521

**EA CLASSICS**

*The Classics range offers a selection of your favourite sport and gaming titles for all the family*

$^{\$}29^{90}$


CLASSICS
RUGBY 2001

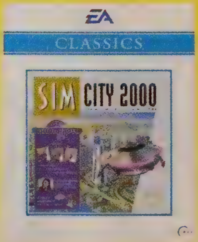
XS2253
(G)

NEED FOR SPEED

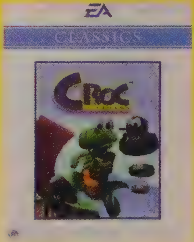
XS2435
(G)

CLASSICS
COMMAND & CONQUER TIBERIAN SUN

XS2017
(M)


CLASSICS
SIM CITY 2000

XS0397
(G)


CLASSICS
CROC

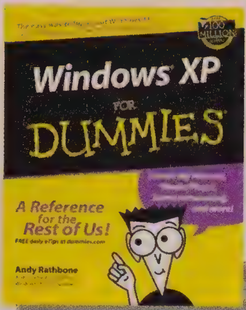
XS4703
(G)

## WINDOWS XP

### Windows XP for Dummies

The Windows XP for Dummies book covers the essentials that new and experienced Windows users need to become familiar with the latest release of the Windows operating system and to use its basic and brand new features.

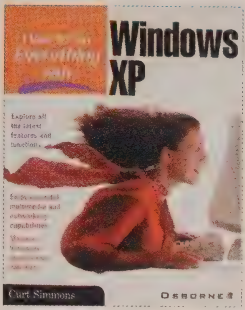
B 6496 $\$49^{95}$


Windows XP
FOR
DUMMIES
A Reference for the Rest of Us!
Andy Rathbone

### How to Do Everything with Windows XP

Get the most out of Windows XP using this friendly, solutions-oriented guide including making movies and playing music. This book will help you learn about all the new updates such as networking for both home and office, faster boot features, and more.

B 6662 $\$57^{95}$

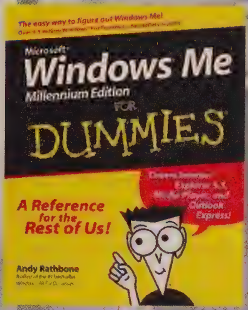

Windows XP
Curt Simmons
OSBORNE

## WINDOWS ME

### Windows Millennium Edition for Dummies

Windows Me controls your computer. But how do you control Windows Me? Don't worry! With this book you'll figure out how to tame those buttons and boxes, install software or a peripheral, connect to the Internet, and use all those cool multimedia features.

B 6558 $\$49^{95}$


Windows Me
Millennium Edition
FOR
DUMMIES
A Reference for the Rest of Us!
Andy Rathbone

### Windows ME Complete

A comprehensive view of Windows Me with a handy A-Z reference. Perfect for everyone from beginner to advanced. Features discussions of MediaPlayer 7, MP3, Image Acquisition, plus an indepth look at IE 5.5, online investing, and security. Over 1000 pages!

B 7609 $\$29^{95}$

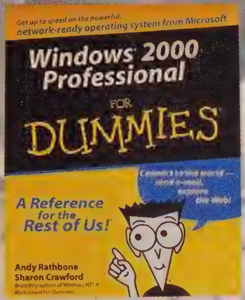
Windows Me
COMPLETE

## WINDOWS 2000

### Windows 2000 Professional for Dummies

Your quick and painless guide to basic operations and new features! This friendly guide is your ideal introduction to Windows 2000 Professional, the powerful new version of Windows NT Workstation.

B 6557 $\$49^{95}$


Get up to speed on the powerful, network-ready operating system from Microsoft
Windows 2000 Professional
FOR
DUMMIES
A Reference for the Rest of Us!
Andy Rathbone
Sharon Crawford

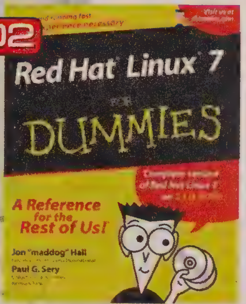
## LINUX

### Red Hat Linux 7 for Dummies

new for 2002

Take control of Red hat, the most popular Linux distribution available today! Save time by quickly finding what you need to know to get the most out of Red hat with this classic book, updated for the newest software. New users will find Red Hat® Linux® 7 For Dummies® a must-read.

B 7057 $\$75$

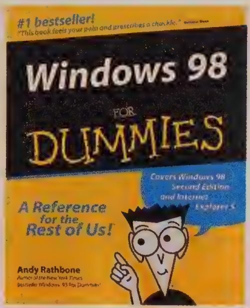

Red Hat Linux 7
FOR
DUMMIES
A Reference for the Rest of Us!
Jon "maddog" Hall
Paul G. Sery

## WINDOWS 98

### Windows 98 for Dummies

Windows 98 for Dummies delivers the goods on mastering the basics of Windows 98: dragging and dropping, cutting and pasting, finding folders and files, and using the Start button.

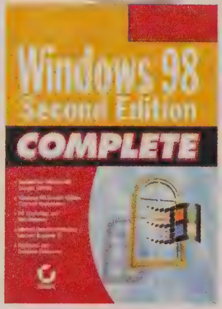
B 6556 $\$49^{95}$


#1 bestseller!
Windows 98
FOR
DUMMIES
A Reference for the Rest of Us!
Andy Rathbone

### Windows 98 Complete 2nd Edition

A one-of-a-kind computer book - provides new users and upgraders with essential Windows 98 coverage, and gives more general knowledge about PC upgrading, maintenance, and Internet Browers.

B 7604 $\$29^{95}$

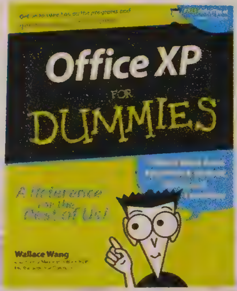

Windows 98
Second Edition
COMPLETE

## MICROSOFT OFFICE

new for 2002

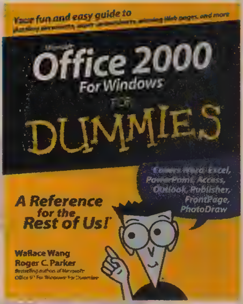
### Office XP for Dummies

This book gives you everything you need to get a handle on the basics of all the Microsoft Office applications and how everything works together. This friendly guide covers the enhanced features of the new version of Microsoft Office XP.
B 6659 $\$49^{95}$


Office XP
FOR
DUMMIES
A Reference for the Rest of Us!
Wallace Wang

### Office 2000 For Dummies

Completely revised to cover all the new Web publishing, collaboration, and data sharing options in Office 2000, this accessible and humourous guide helps readers quickly and easily get answers to questions they have about this popular suite.
B 6635 $\$49^{95}$

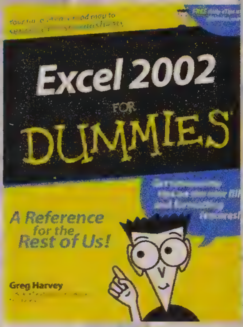

Your fun and easy guide to
Office 2000
For Windows
FOR
DUMMIES
Covers Word, Excel, PowerPoint, Access, Outlook, Publisher, FrontPage, PhotoDraw
A Reference for the Rest of Us!
Wallace Wang
Roger C. Parker

## MS EXCEL

new for 2002

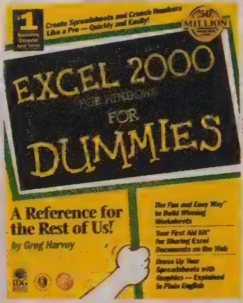
### Excel 2002 for Dummies

Excel 2002 can help you keep records, track trends and analyse results once you get up to speed. Packed with expert tips, it walks you through Excel fundamentals including the new task pane interface and shows you how to take advantage of voice recognition and other cool features.
B 1652 $\$49^{95}$


Excel 2002
FOR
DUMMIES
A Reference for the Rest of Us!
Greg Harvey

### Excel 2000 for Dummies

Find out how to do everything from embedding QuickTime VR into spreadsheets to publishing worksheets on the Web with this book. It includes coverage of Excel's latest features such as heightened Web integration tools and improved collaboration tools. It also reveals how to integrate Excel with other applications.
B 6619 $\$49^{95}$


Create Spreadsheets and Crunch Numbers Like a Pro — Quickly and Easily!
EXCEL 2000
FOR WINDOWS
FOR
DUMMIES
A Reference for the Rest of Us!
by Greg Harvey

### Excel 97 for Dummies

The most up to date information on Excel 97 with easy to follow examples and time saving tips. Find all the practical information you need to transform dull data into meaningful charts and graphs, scenarios, and even maintain worksheet-based databases.
B 6615 $\$39^{95}$*

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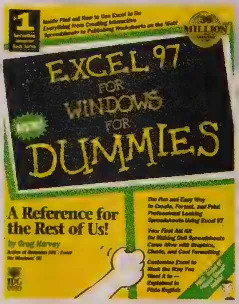
EXCEL 97
FOR
WINDOWS
FOR
DUMMIES
A Reference for the Rest of Us!
by Greg Harvey

## MS WORD

new for 2002

### Word 2002 for Dummies

Word 2002 comes loaded with all kinds of features, and this friendly guide shows you how to make the most of them. From basic editing and formatting to voice recognition, printing labels and creating an index makes it simple to become a word whiz.
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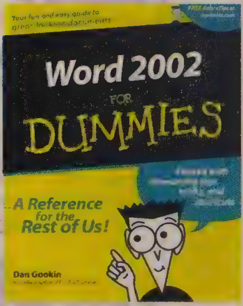
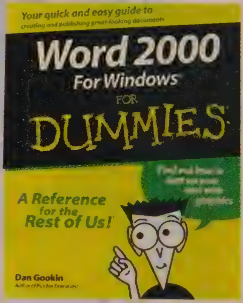

Word 2002
FOR
DUMMIES
A Reference for the Rest of Us!
Dan Gookin

### Word 2000 for Dummies

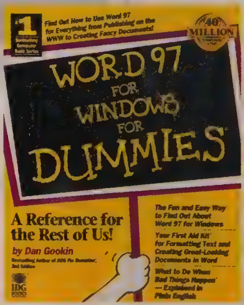
Delivers helpful advice on ways to customise Word 2000 to make it work the way that you do. Create great looking newsletters, brochures, greeting cards, and much more.
B 6647 $\$49^{95}$


Your quick and easy guide to
Word 2000
For Windows
FOR
DUMMIES
A Reference for the Rest of Us!
Dan Gookin

### Word 97 for Dummies

Features sound advice and step-by-step details on everything from Word basics to advanced features such as including graphics, tables, and charts in your documents and using Word's integrated wizards to make cool Word stuff as easy as point-and-click.
B 6616 $\$39^{95}$*

*Limited Stock

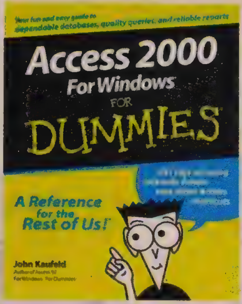

WORD 97
FOR
WINDOWS
FOR
DUMMIES
A Reference for the Rest of Us!
by Dan Gookin

## ACCESS/POWERPOINT

### Access 2000 for Dummies

In classic For Dummies style, John Kaufeld explains how to create a database, build tables and make queries, create easy-to-read reports, take advantage of wizards and shortcuts, and publish databases on the Internet with Access 2000.

B 6618 **$49.95**


Access 2000 For Windows FOR DUMMIES
A Reference for the Rest of Us!
John Kaufeld

### PowerPoint 2000 for Dummies

Find out how to organise, illustrate, and deliver your ideas with maximum impact and a minimum of headaches by using PowerPoint's powerful built-in features. The tips and tricks you'll discover will leave your audiences clamouring for more!

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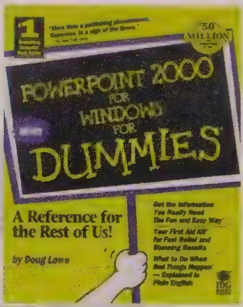
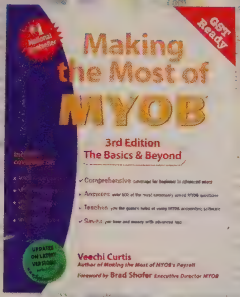

POWERPOINT 2000 FOR WINDOWS FOR DUMMIES
A Reference for the Rest of Us!
by Doug Lowe

## MYOB

### Making the Most of MYOB

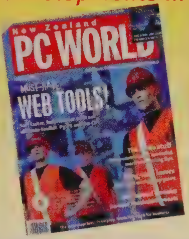
The most comprehensive, accessible MYOB resource available. With its easy to access format and incisive commentary, this book contains all you need to make the most of MYOB and save time and money for your business.

B 6762 **$59.95**


Making the Most of MYOB
3rd Edition
The Basics & Beyond
GST Ready
Veechi Curtis

## MAGAZINES

*Keep up to date each month with the latest developments in the PC and Internet world*


New Zealand PC WORLD
WEB TOOLS!

internet
Webmania!

**PC World** $8.95

**Internet Magazine** $4.50

## THE INTERNET

### Internet Complete 2nd Edition

In this completely updated and revised edition, you will learn how to get connected and take quick advantage of all that the Internet and the World Wide Web have to offer.

B 7608 **$24.95**

Internet COMPLETE
ONLY $19.95!

### Creating Web Pages For Dummies

5th Edition. Provides essential information for beginner Internet users to create web pages with software such as Microsoft FrontPage and Adobe PageMill, plus how to find free tools, publish a home page quickly, and more. CD-ROM is packed with web tools.

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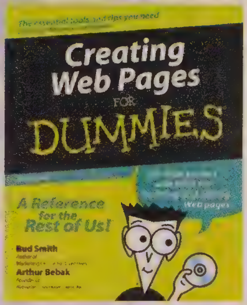
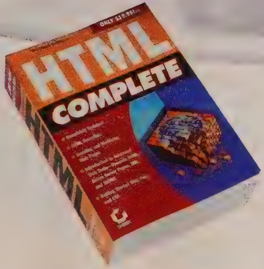

Creating Web Pages FOR DUMMIES
A Reference for the Rest of Us!
Bud Smith
Arthur Bebak

### HTML Complete 2nd Edition

The easy to understand definitive guide to using HTML. Essential HTML coverage includes: formatting fundamentals, forms, frames, tables, imagemaps, and integrating Java, JavaScript, ActiveX, and multimedia.

B 7606 **$39.95**


HTML COMPLETE
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### The Internet for Dummies

Discover how to select the best Internet service provider for you, send and receive e-mail, shop online, and create your own Web page complete with graphics and links. Comes with CDROM.

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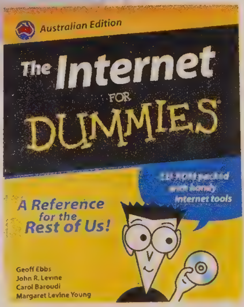

Australian Edition
The Internet FOR DUMMIES
A Reference for the Rest of Us!
Geoff Ebbs
John R. Levine
Carol Baroudi
Margaret Levine Young

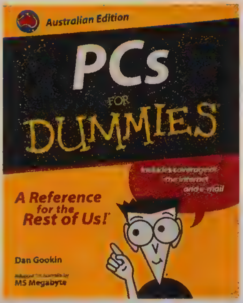
# Computer Books

## PCs

### PC's For Dummies - Australian Edition

This guide is the ideal reference for first-time PC users. Written with humour and common sense, this book demystifies hardware, software, mail, the internet and more - and leads you step-by-step through setting up your computer to getting your work done.

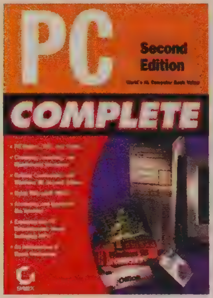
B 6676 **$49.95**


Australian Edition
PCs FOR DUMMIES
A Reference for the Rest of Us!
Dan Gookin

### PC Complete 2nd Edition

Learn all about your computer's hardware and software so that you can quickly take advantage of all your PC has to offer. Save money by learning how to solve common problems and performing simple upgrades. 1024 pages.

B 7800 **$39.95**

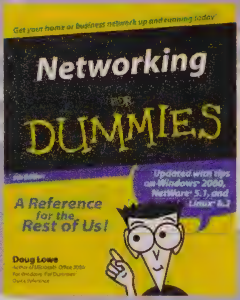

PC Second Edition
COMPLETE

## NETWORKING

### Networking for Dummies - 5th Edition

You've been assigned to set up a computer network at the office, or you've inherited somebody else's network to fix. Your first question: What's a network? Not to worry. Networking For Dummies has all the answers you'll need.

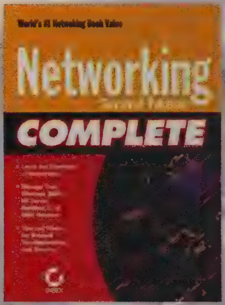
B 6555 **$49.95**


Networking FOR DUMMIES
A Reference for the Rest of Us!
Doug Lowe

### Networking Complete Book

Networking Complete covers hardware, software, and technologies, as well as NT Server, NetWare 5, and Unix. With its reference material, introductory and advanced coverage, it will appeal to anyone interested in computer networking. 912 pages.

B 7605 **$39.95**

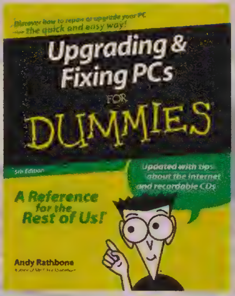

Networking
COMPLETE

## UPGRADING AND REPAIRING PCs

### Upgrading and Fixing PCs for Dummies, 5th Edition

In this book you will find helpful advice on fixing problems, upgrading your computer to run Windows 98, installing inexpensive memory chips for faster performance plus adding new sound and video cards.

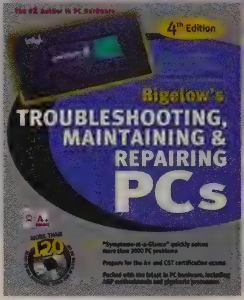
B 6657 **$49.95**


Upgrading & Fixing PCs FOR DUMMIES
A Reference for the Rest of Us!
Andy Rathbone

### Troubleshooting, Maintaining and Repairing PCs Book & CD

The ultimate PC reference - fully revised and updated. Solve all of your PC problems - from motherboard conflicts and power supply issues to error codes and virus symptoms - quickly and thoroughly with this comprehensive troubleshooting reference.

B 6202 **$119.95**

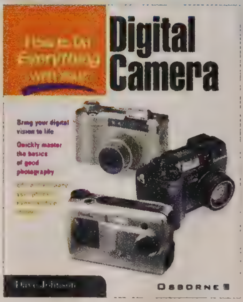

4th Edition
Bigelow's
TROUBLESHOOTING, MAINTAINING & REPAIRING PCs

## DIGITAL CAMERAS

### How to do Everything with your Digital Camera

This volume will help you get great results from your digital camera. Learn digital photography basics, share results through e-mail or the Internet, electronically store images, apply advanced photography techniques, perform image editing, and more.

B 7495 **$52.95**


How to Do Everything with Your
Digital Camera
OSBORNE

## PALM

### "How to do everything with your Palm Handheld, 2nd Edition" - Book

Take advantage of everything your Palm handheld computer has to offer with the help from this resourceful guide.

B 7583 **$52.95**

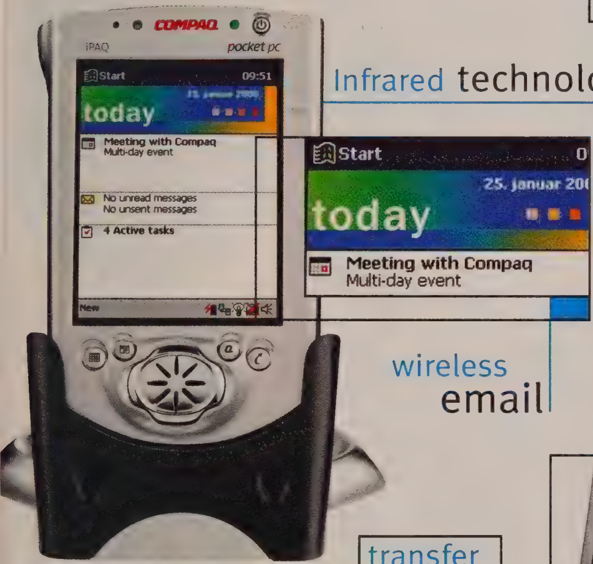
How to Do Everything with Your
Palm Handheld
Second Edition
Dave Johnson
Rick Broida
OSBORNE

# Pocket PC generation

*It's a phonebook.*
*It's a diary.*
*It has the internet.*
*It has email.*
*and it's an organiser too!*

COMPAQ
iPAQ
pocket pc

mobile
bluetooth
enabled


COMPAQ
iPAQ
pocket pc
Start
09:51
today
Meeting with Compaq
Multi-day event
No unread messages
No unsent messages
4 Active tasks
New
Start
25. januar 20
today
Meeting with Compaq
Multi-day event

Infrared technology

wireless
email

transfer
data

Embrace the future with the latest portable computing technology from Dick Smith Electronics. Today's handheld computers are eclipsing the power of yesterday's desktop systems.
You can now open Word and Excel files on the run, browse the Internet, and check your email. Update your schedule and contacts at your desk, then take all your important information with you when you leave the office. And if you're ready for wireless networking, so is your handheld! When the work is done, enjoy your favourite MP3 music, play a game or read an eBook.
The future of handheld computing is available today at Dick Smith Electronics. We're ready to make your life easier, so see us today and see what you've been missing!

*PDAs – your office in your pocket.*

Not available in all stores, but may be ordered.

NB. PDA's shown for example only and may not include all features.

# Palm Handhelds

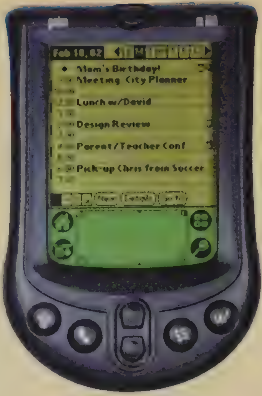
*Customisable and easy-to-use.*

## m100 Handheld

If the word busy doesn't begin to describe your life, the Palm m100 handheld can help you simplify things. This affordable handheld keeps track of all of life's little details and gives you the flexibility to add business productivity tools, games and Internet access.

2MB memory, serial HotSync cable, 2xAAA batteries.

V 5802 **$299.90**


Feb 18, 02
Mom's Birthday!
Meeting City Planner
Lunch w/David
Design Review
Parent/Teacher Conf
Pick-up Chris from Soccer

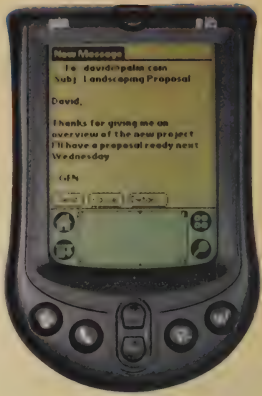
*Simple, connected and fun.*

## m105 Handheld

If you want to simplify your life and still have plenty of room to grow, take a closer look at the Palm m105 handheld. It has all the cool features of the Palm m100 handheld, with more memory, the mobile internet kit, and a cradle for fast and easy backup.

8MB memory, serial HotSync cradle, 2xAAA batteries.

V 5816 **$449.90**


New Message
To: david@palm.com
Subj: Landscaping Proposal
David,
Thanks for giving me an overview of the new project. I'll have a proposal ready next Wednesday

*Expandable and connectable.*

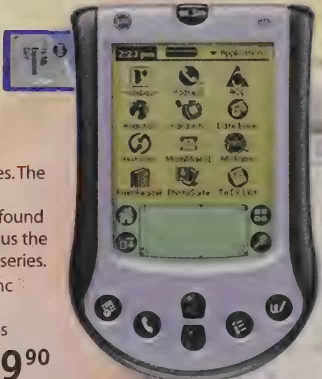
## m125 Handheld

Inherit all the great features. The m125 sports the coveted expansion slot previously found only in the m500 family, plus the sleek design of the m100 series.

8MB memory, USB HotSync cradle, 2xAAA batteries, expansion card slot, bonus software.

V 5833 **$599.90**

(Card not included)



*As colourful as your life.*

## m130 Handheld

The m130 is a stylish, affordable tool that will keep you organized at work, school and even during your (few) spare moments. You'll be ready to go right out of the box - in no time at all you'll be loading your address book and checking off items on your to-do list.

Full colour, 8MB memory, USB HotSync cradle, rechargeable battery, expansion card slot, bonus software.

V 5900 **$849.90**

(Card not included)

*Expandable, Internet-capable.*

## m500 Handheld

It's one of the coolest, lightest handhelds on the planet. As the next generation of our popular V series handhelds, the m500 comes from a long line of great design and includes lots of new functionality.

8MB memory, USB HotSync cradle, rechargeable battery, expansion card slot, bonus software.

V 5817 **$899.90**

(Card not included)

*The fusion of style and power.*

## m515 Handheld

A stylish marriage of form and function, the Palm m515 handheld is perfect for today's tech-savvy professional. Whether you're managing contracts or your calendar, composing email or a Word-compatible doc, you'll get brilliant colour, simplicity and sophistication in one ultra-slim design.

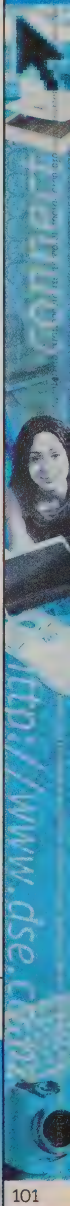
Full colour, 16MB memory, USB HotSync cradle, rechargeable battery, expansion card slot, bonus software.

V 5901 **$1198**

(Card not included)

REVENUE
1st Qtr
2nd Qtr
3rd Qtr

**We have a full range of Palm keyboards, cases, styli and accessories. See page 102 or call your local Dick Smith Electronics store.**



## **COMPAQ** iPAQ Pocket PC H3850

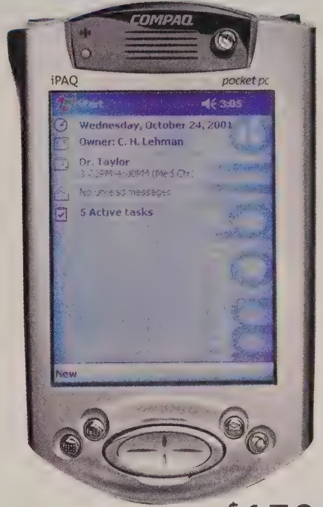
The iPAQ PocketPC is ready for the latest Bluetooth-enabled PCs and mobile phones. Communicate wirelessly to synchronise your iPAQ PocketPC and enjoy the advantages of real time access to email, web, and specialised business applications. You can update information and stay in touch easily and with just one handheld device. Compaq leads the industry by delivering the award-winning iPAQ PocketPC with integrated Bluetooth capability.

The innovative expansion pack system allows you to add functionality on the fly by sliding expansion packs onto the back of the iPAQ PocketPC. Expansion packs are available for PC cards, CF cards, and GSM/GPRS wireless communications. Independent vendors are developing GPS satellite navigation, barcode scanning, and more.

The new H3800 series also features an integrated SD (Secure Digital) card expansion slot. You can use SD cards as additional storage for PocketPC files, or to swap between a camera or MP3 player for music and images. Future SD innovations are in the pipeline, and the iPAQ PocketPC is ready to take advantage of them.

- 206MHz Intel StrongARM 32-bit RISC processor
- 64MB SDRAM
- 32MB Flash ROM
- 16-bit colour reflective TFT screen
- Audio recorder and player
- Integrated speaker, microphone, and headphone jack
- USB and IrDA interfaces
- Secure Digital (SD) card slot
- Expansion Pack system
- Windows Media Player 8
- 1400mAh lithium polymer rechargeable battery
- Microsoft PocketPC 2002 operating system
- Microsoft ActiveSync 3.5 desktop manager
- Pocket Word, Excel, Internet Explorer, and Inbox
- IPresenter PowerPoint converter
- Additional applications on Compaq Companion CD

Bluetooth™



new for 2002

| | | |
|---|---|---|
| V 5836 | iPAQ H3850 with Bluetooth option | $1798 |
| V 5837 | iPAQ H3870 with integrated Bluetooth | $1898 |

**Ask in store about our range of extended warranties.**

## **TOSHIBA** PocketPC e570

The new Toshiba PocketPC e570 combines high performance with a superb user interface, giving you maximum power and convenience in the palm of your hand. Thanks to a super-bright 3.5-inch front-light reflective TFT LCD supporting 65,536 colors and a large 240 x 320 pixel resolution, the e570 can be used both indoors and outdoors. The display is highly suited for all applications including playback of video media!

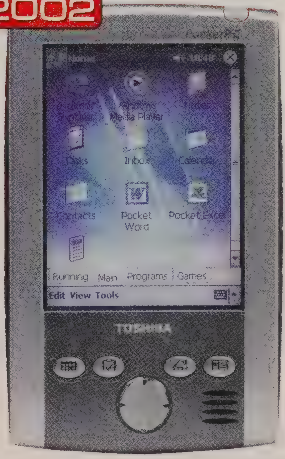
The e570 uses a 206MHz Intel StrongARM Processor, one of the fastest available for PocketPC applications, and the newest version of Microsoft's Pocket PC operating system. The CPU plus 64MB of DRAM assure high speed processing of software optimized for the PocketPC OS, including Pocket versions of Word, Excel, Outlook, Internet Explorer and the Windows Media Player, all of which are integrated into the e570. Data synchronization and downloads are a snap thanks to the supplied USB base/charger.

Perhaps best of all, the e570 utilizes a dual expansion slot design that is unique to Toshiba. The e570 incorporates both a Compact Flash Type II (CF-II) slot AND a Secure Digital (SD) slot in the same package. Add more memory and use a communications card at the same time! Or, use an SD card for MP3 music while your CF slot houses a GPS receiver for satellite navigation! The possibilities are endless.

Toshiba's PocketPC e570 - the future of PDA.
V 5840

$1798

new for 2002



For the full range of
**COMPAQ** and **TOSHIBA** Pocket PC
accessories, visit us online at
**www.dse.co.nz**

hp invent

Visit our Hewlett Packard online store at
**www.hponline.co.nz**
for the full range of HP Jornada
Pocket PCs and accessories

# PDA Accessories

| | | | | COMPATIBILITY | | | | |
|---|---|---|---|---|---|---|---|---|
| Cat No. | Product Description | Model | Price | V<br>Vx | m100<br>m105 | m125 | m130 | m500<br>m505<br>m515 |
| | **Cases** | | | | | | | |
| V 4814 | V Deluxe Leather Carrying Case | 10406U | $149.90 | ✔ | | | | |
| V 4813 | V Leather Belt Clip Case | 10407U | $89.90 | ✔ | | | | |
| V 4816 | V Silver Hard Case | 10410U | $99.90 | ✔ | | | | |
| V 5514 | V Metallic Blue Hard Case | 3C10442U | $69.90 | ✔ | | | | |
| V 4818 | V Slim Leather Carrying Case | 10405U | $89.90 | ✔ | | | | |
| V 5404 | m1 Slim Leather Carrying Case | P10703U | $79.90 | | ✔ | ✔ | ✔ | |
| V 5490 | m5 Slim Leather Case | P10807U | $89.90 | | | | | ✔ |
| V 5476 | m5 Leather Belt Clip Case | P10809U | $89.90 | | | | | ✔ |
| V 5477 | m5 Zippered Leather Case | P10810U | $119.90 | | | | | ✔ |
| V 5478 | m5 Leather Wallet Case | P10812U | $99.90 | | | | | ✔ |
| V 5540 | m5 Hard Case | P10815U | $149.90 | | | | | ✔ |
| V 5479 | Deluxe Leather Keyboard Case | P10814U | $129.90 | ✔ | | ✔ | ✔ | ✔ |
| | **Stylus Pens** | | | | | | | |
| V 4811 | V Stylus 3-Pack | 10411U | $39.90 | ✔ | | | | |
| V 4838 | V Dual Action Stylus | 10147U | $99.90 | ✔ | | | | |
| V 5403 | m10 Stylus 3-Pack | P10702U | $19.90 | | ✔ | | | |
| V 5538 | m125 Stylus 3-Pack | P10808U | $19.90 | | | ✔ | ✔ | |
| V 5480 | m5 Stylus 3-Pack | P10818U | $39.90 | | | | | ✔ |
| | **Connections** | | | | | | | |
| V 4826 | PalmConnect USB Kit | 3C90201U | $139.90 | ✔ | ✔ | | | |
| V 4755 | PalmConnect Serial Kit | 3C90202U | $49.90 | | | | | |
| V 5509 | Macintosh Serial Adapter | 10116U | $19.90 | ✔ | ✔ | | | |
| V 4810 | V Serial HotSync Cradle | 10403E | $199.90 | ✔ | | | | |
| V 4815 | Targus V USB HotSync Cable | | $99.90 | ✔ | | | | |
| V 4817 | V Travel Kit | 10413U | $119.90 | ✔ | | | | |
| V 5402 | m10 Serial HotSync Cradle | P10700U | $99.90 | | ✔ | | | |
| V 5401 | m10 Serial HotSync Cable | P10701U | $69.90 | | ✔ | | | |
| V 5542 | m5 Car Charger | P10801U | $89.90 | | | | ✔ | ✔ |
| V 5474 | m5 Travel Charger | P10803U | $169.90 | | | | ✔ | ✔ |
| V 5475 | Universal Serial HotSync Cable | P10804U | $69.90 | | | ✔ | ✔ | ✔ |
| V 5472 | Universal USB HotSync Cable | P10805U | $69.90 | | | ✔ | ✔ | ✔ |
| V 5481 | Universal USB HotSync Cradle | P10819ROW | $199.90 | | | ✔ | ✔ | ✔ |
| V 5491 | Universal Serial HotSync Cradle | P10828ROW | $139.90 | | | ✔ | ✔ | ✔ |
| | **Keyboards** | | | | | | | |
| V 4713 | m10 Portable Keyboard | P10713U | $299.90 | | ✔ | | | |
| V 5473 | Universal Portable Keyboard | P10802U | $349.90 | | | ✔ | ✔ | ✔ |
| V 4719 | V Portable Keyboard | 3C10439U | $299.90 | ✔ | | | | |
| | **Cards And Software** | | | | | | | |
| V 5482 | 8MB Memory Backup Card | P10860U | $89.90 | | | ✔ | ✔ | ✔ |
| V 5489 | 16MB SD Expansion Card | P10827U | $149.90 | | | ✔ | ✔ | ✔ |
| V 5543 | 32MB SD Expansion Card | P10844U | $199.90 | | | ✔ | ✔ | ✔ |
| V 5544 | SD Bluetooth Card | P10832US | $499.90 | | | ✔ | ✔ | ✔ |
| V 5484 | PalmPak Dictionary/Thesaurus Card | P10822U | $169.90 | | | ✔ | ✔ | ✔ |
| V 5485 | PalmPak Games Card | P10823U | $119.90 | | | ✔ | ✔ | ✔ |
| V 5486 | PalmPak US Cities Travel Card | P10824U | $89.90 | | | ✔ | ✔ | ✔ |
| V 5487 | PalmPak European Cities Travel Card | P10825U | $89.90 | | | ✔ | ✔ | ✔ |
| V 5488 | PalmPak AsiaPacific Cities Travel Card | P10826U | $89.90 | | | ✔ | ✔ | ✔ |
| V 5545 | PalmPak Language Translator Card | P10834U | $169.90 | | | ✔ | ✔ | ✔ |
| V 5546 | PalmOS v4.1 Upgrade | P50441EFIG1 | $119.90 | ✔ | | | | |
| V 4870 | Palm Mobile Internet Kit | P50404U | $79.90 | ✔ | ✔ | | | |
| V 4765 | Pumatech Intellisync Palm/CE | | $249.90 | ✔ | ✔ | ✔ | ✔ | ✔ |
| V 5522 | Dataviz Documents to Go Professional | | $299.90 | ✔ | ✔ | ✔ | ✔ | ✔ |

**Franklin**

## eBookMan 900

A PDA, a music player supporting MP3, a digital voice recorder, and an eBook reader all in one! Write notes in natural handwriting or use the handy pop-up screen keyboard. And you'll never run out of memory with a huge 8MB on board plus a 64MB MMC card slot. Fashionable pocket-sized, translucent blue case.
V 5803

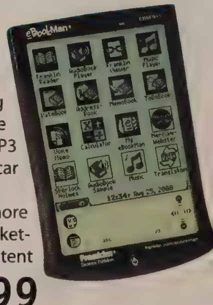
**$249**

**Franklin**

## eBookMan 911

The perfect mobile executive assistant. 16Mb on-board memory upgradeable with 64MB MMC cards. Built-in digital voice recorder. Sync to MS Outlook using IntelliSync for eBookMan. Listen to all the latest voice books or music from your MP3 files while you drive, using the optional car adaptor. And when you want to read a schedule or an eBook, you'll have 87% more pixels than other PDAs. All in a sleek pocket-sized package. Supplied with deluxe content upgrade.
V5805

**$299**



## ENGLISH REFERENCE

new for 2002

**Franklin**

### Pocket Spellmaster STQ106

Franklin
SPELLMASTER

Instant English spell correction, plus a built-in French translator. Over 220,000 words - including French. Simply enter the word as it sounds - "nolij" becomes "knowledge". Ten word games make learning fun. Databank for storing names and phone numbers, plus a calculator.

V 7338

**$79.90**

new for 2002

**Franklin**

### Pocket Wordmaster TTQ106

Franklin
WORDMASTER

Looking for the right word? With this electronic thesaurus you will avoid word repetition and expand your writing vocabulary. Phonetic spell corrector. Built-in French translator. Half a million synonyms! Also stores names and phone numbers, plus a calculator.

V 7339

**$99.90**

new for 2002

### Franklin Crossword Puzzle Solver CWM106

M?GN?F?CEN?
Pocket PUZZLE MASTER
With Chambers Words

Grab a cuppa and get ready for some crossword fun. Instantly find letters and phrases so you'll never be stumped again. Contains 250,000 words and phrases. Categorises into biographical, geographical, scientific groups and much more. Second guess feature provides alternative solutions by changing one or two letters. Bonus gift package!

V 7337

**$99.90**

new for 2002

### Franklin Desktop Wordmaster TTQ206

Franklin
THESAURUS AND SPELLER

Whether it's a larger screen display you're after or bigger buttons, this desktop thesaurus and speller is the unit for you. Half a million synonyms, built-in crossword solver, and a French translator! Additional features include a contact databank, calculator, and word games.

V 7345

**$119.90**

### Franklin BOOKMAN Dictionary and Thesaurus MWD1440

500,000 thesaurus returns and 300,000 detailed definitions from Merriam-Webster! Add a card and add a book - BOOKMAN products have a slot in the back, which can turn the existing electronic book into a new one - simply by snapping in a card. With a great range of card titles available this is the complete education product.

V 7360

**$199.90**

new for 2002

## FOREIGN LANGUAGE

**Franklin**

### Western European Translator TWE106

passaporto
European Translator

A perfect gift or essential purchase for the big OE! Translate between English, French, German, Italian, and Spanish. 210,000 translations plus a databank for contacts, calculator, and games. Includes a bestselling Lonely Planet travel book for Europe!

V 7344

**$119.90**

### Franklin Eastern European Translator TE218

Translate between English, Czech, French, German, Hungarian, Polish, Russian and Turkish. A total of 300,000 translations including 8,000 handy travel phrases. Pocket-sized with a 2-line display. Also features a calculator with currency conversion, world clock, and contact databank.

V 7358

**$149**

http://www.dse.co.nz

# *Electronic Organisers*

**SHARP**

### Electronic Organiser EL6053

The compact organiser with the features you need. Store names and numbers, plus a brief agenda and memos. There is also a game, world time clock, and a calculator with built-in conversions.

V 9353 $\$29^{90}$

**SHARP**

### Electronic Organiser EL6810

Gain quick access to email addresses or URL information via dedicated keys! That's in addition to 3 telephone directory files, your daily schedule, plus more features including a game. With 64KB of memory, there's plenty of room for your important information.

V 9354 $\$39^{90}$

new for 2002

**SHARP**

### Electronic Organiser EL6850

A slimline pocket organiser with 128KB memory. Quick access application buttons and a cursor control pad make navigation easy. The 14 x 4 display is backlit and there's a separate keypad for calculations. Includes password protection for your data.

V 9357 $\$99^{90}$

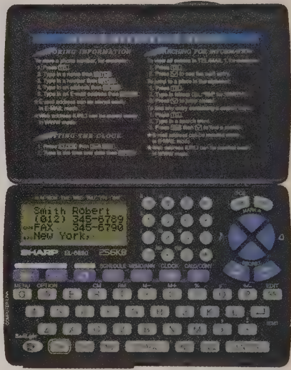
new for 2002

**SHARP**

### Electronic Organiser EL6890PC

A powerful pocket organiser with 256Kb memory and PC link included. Quick access application buttons and a cursor control pad make navigation easy. The 14 x 4 display is backlit and there's a separate keypad for calculations. Includes password protection for your data.

V 9358 $\$149^{90}$



new for 2002

**SHARP**

### Electronic Organiser ZQ520PC

The ultimate compact organiser. A huge 1MB memory and 20x5 line backlit display, in a stylish and protective folding clamshell design. A complete PC link kit is included, allowing you to backup your personal data and synchronise with Microsoft Outlook.

V 9360 $\$199^{90}$

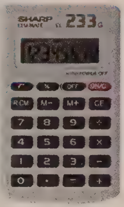
**SHARP**

### Electronic Organiser ZQ700PC

Affordable power! This stylish organiser has 1.5MB of memory, a large screen, and a wide keyboard for easy data entry. In addition to all of the standard organiser functions, you can customise your ZQ700PC by downloading add-on software and content from the Internet or the included CD. Full PC link included.

V 9337 $\$299^{90}$

## HOME

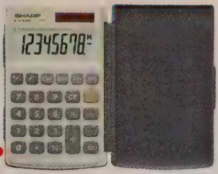


**SHARP**

### Compact Calculator EL233LB

- Compact and affordable.
- Percentage and square root functions.
- 8-digit display. Auto power off - saves battery life.

V 3848 $8.90



**SHARP**

### Hard Cover Calculator EL376SB

- Hard cover and twin power.
- Large 8-digit display.
- Durable plastic keys.

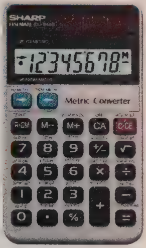
V 9345 $19.90

**SHARP**

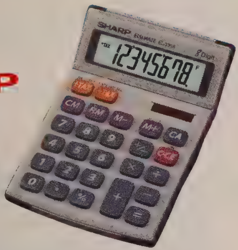
### Metric Calculator EL344G

- 44 metric Conversions.
- Large 8-digit display with punctuation.
- Solar powered plus wallet.

V 3845 $49.90



## OFFICE



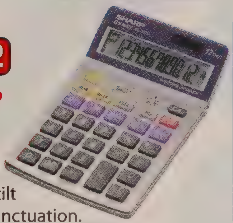
**SHARP**

### Easy Hold Calculator EL330AB

- Large 8-digit tilt display with punctuation.
- Tax +/- and F-2-0 decimal setting.
- Twin powered for reliability.

V 3856 $34.90

new for 2002



**SHARP**

### Desktop Calculator EL337C

- Large 12-digit tilt display with punctuation.
- Twin power for reliability.
- F-3-2-0-A decimal setting.
- Tax +/-, rate conversion, and answer check.

V 3719 $69.90

## SCIENTIFIC

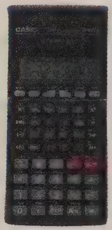
**SHARP**

### Scientific Calculator EL531VH

- Recommended for high school use.
- 183 Functions.
- 2-line display with Direct Algebraic Logic.
- Playback recalls previous calculations.

White V 9363
Blue V 9364

$29.90



**CASIO**

### Scientific Calculator fx82TL

- The choice of many NZ schools.
- 159 functions.
- 2-line display shows equations and results.
- Enter equations easily with VPAM.

V 4790 $39.90

## BUSINESS

**hp invent**

### Business Calculator 10b

The powerful calculator that makes good business sense. Over 100 functions for maths, business, and finance. Includes loans, interest rates, amortisation, markup, forecasting, and cashflow analysis. A wise investment for business people and business students.

V 3530 $99.90

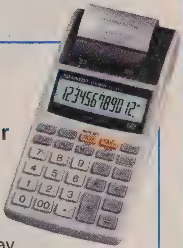
**hp invent**

### RPN Financial Calculator 12c

The calculator that more professionals rely on. Over 120 business functions including statistics, TVM, amortisation, cashflows, bond prices and yields, and depreciation. It's the industry choice for real estate, banking, and finance professionals.

V 9324 $219.90

## PRINTER



**SHARP**

### Portable Printer Calculator EL1611P

- Large 12-digit display.
- Large 12-digit display.
- Prints 1.4 lines per second.
- Internal or external paper supply.
- Tax, Decimal, and Memory functions.
- Requires 4xAA batteries.
- Optional AC adaptor EA28A (V9326).

V 3891 $89.90

**SHARP**

### Desktop Printer Calculator EL1801C

- Large 12-digit display.
- 2-colour printing, 2.1 lines per second.
- Tax, Decimal, Counter, Rounding, MarkUp.
- Requires 4xAA batteries.
- Optional AC adaptor EA28A (V9326).

V 3872 $129.90

new for 2002

**SHARP**

### Desktop Printer Calculator EL2902C

- Large 12-digit backlit display.
- 2-colour printing, 2.6 lines per second.
- Tax, Discount, Decimal, Counter, Rounding, MarkUp.
- Dedicated AC mains power.

V 3897 $199.90

# music

## do you want that "*to go?*"

Kiwis love to get out and about, and we love to take our music with us. When we're on the move, we want products that enhance our mobile lifestyles. Dick Smith Electronics specialise in portable audio, and this year we have the most extensive range of products for you.

Digital music is everywhere today, and we've got it all: CD, MiniDisc, NetMD, and MP3.

Our friendly and knowledgeable staff make it easy for you.

Listening to the radio has timeless appeal, and this year we have the most comprehensive range of radios available.

So whether it's a clock radio for the bedroom, or a CD player for the bush, come and talk to us.

*personal cd*

radios

cassette *players*

notetakers

OLYMPUS
DIGITAL VOICE RECORDER

mini *discs & mp3*

TDK
CD-R AUDIO
TDK
XA80
CD-R AUDIO
80

headphones

**digitor**

### Compact Clock Radio RR255

Battery backup makes this alarm ultra-reliable so you'll never be late! Wake to AM/FM radio or buzzer. With snooze/sleep functions. Mains powered, requires 1x9V battery for backup.
A 4347

**$29.50**

new for 2002

**TEAC**

### Clock Radio CRX33

Snooze and wake up to your favourite radio station, or use the buzzer alarm if you can't afford to be late!
A 2051 Green
A 2052 Blue

**$39.90 ea**

new for 2002

**CASIO**

### Travel Clock Radio RT10

Perfect for people on the move, this clock radio is housed in a protective blue or silver case. It features a clear LCD display, snooze function, alarm/buzzer option, and headphone jack for personal listening. Don't rely on those old motel clock radios!
A 9983

**$59.90**

new for 2002

### digitor Jumbo LED Clock Radio ETL318

Rest your eyes on this exclusive new Digitor clock radio. You won't be squinting when you glance at the big clear display, and the radio alarm will be music to your ears. Optional 9V battery backup.
A 4332

**$49.50**

new for 2002

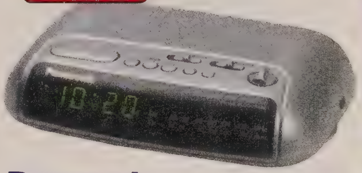
**TEAC**

### Super Display Clock Radio CRX40

Check out the largest time display in our clock radio range! Big, bold, green LCD numbers in a surprisingly low profile unit. Includes standard radio/buzzer options.
A 2034

**$59.90**

new for 2002



**Panasonic**

### Clock Radio RC6299

Wake up gently to your favourite radio station, or use the standard alarm to make sure you're not late! This AM/FM clock radio also features an earphone jack, making it the ideal companion to our pillow speaker (C2223).
A 4535

**$79.90**

new for 2002

### SONY Dream Machine Clock Radio ICFC490

Since you'll spend one third of your life asleep, you might as well doze off and wake up in style. This new model clock radio has an extra-large display with brightness control, and radio or buzzer alarms to keep you on time.
A 1450

**$89.90**

new for 2002

**SONY**

### Cube Clock Radio ICFC153

A bedroom design classic, completely remodelled for 2002! Add modern flavour to your upstairs decor with Sony's Digital Cube clock radio. Enjoy features like 15 radio station presets, one-button DST adjustment, dual alarms, backlit LCD and date display.
A 9985

**$139.90**

**SONY**

### CD Dream Machine ICFCD830

Step up to the ultimate bedside appliance. The new design style and superb stereo sound quality are everything you'd expect from Sony. This CD clock radio wakes you up to a choice of CD music, radio, or buzzer. Select your own wake-up track, and snooze to your favourite tunes!
A 0343

**$249.90**

new for
2002

### HW Auto-Scan Personal FM Radio

You will be amazed by this cool little radio - even before you see the price! It automatically scans for FM radio stations, locking in the best signal for your listening pleasure. It's also very practical, with a built-in mini-torch and belt clip. Requires 2xAAA batteries.

A 9982 Red
A 9898 Yellow
A 9899 Blue

**$9.90**

**digitor**

### AM/FM Headphone Radio

Comfort, convenience, and superb mobile listening. The radio is built in to the headphones, so there are no messy cords. The sprung steel headband is both sturdy and adjustable. Requires 2xAA batteries.

A 5912

**$29.50**

**digitor**

### Micro Stereo Radio R101

Personal listening pleasure with micro-sized convenience. The super-sensitive IC circuit provides excellent FM stereo and AM reception. Belt pouch and earphones included, requires 1xAA battery.

A 4286

**$49.50**

**digitor**

### Digital Pocket Radio MR313

Digital quality that you can take with you anywhere! Features PLL digital tuning, earphones, and speaker. You can preset your ten favourite stations (5xAM, 5xFM), and recall the last station from memory. Requires 2xAAA batteries.

A 4288

**$59.50**

**SONY**

### Radio Walkman SRF59

Whether you're a sports fan or a music fan, you'll never miss a score with this Walkman radio. AM/FM tuner with stereo headphones included. It's small in size but big on performance - get one today and hear what you've been missing!

A 4378

**$59.50**

**SANGEAN**

### Micro Radio SR2

Awesome listening enjoyment from the world-famous Sangean stable! This miniature radio weighs just 38g without battery, and features Deep Bass Boost (DBB) for fantastic sound reproduction. With mono/stereo switch, and stereo earphones included. 79x41x15mm WHD.

A 0159

**$69.50**

new for
2002

**Panasonic**

### AM/FM Micro Radio RFNA030

This super-thin receiver provides up to 78 hours' use from one battery! The earphones deliver excellent sound from AM or FM stations, and the unit is small and light enough for your shirt pocket. Requires 1xAAA battery.

A 9984

**$79.90**

new for
2002

**SONY**

### Personal AM/FM Radio SRFS84

Cigarette lighter size, with Mega Bass sound! You'll be blown away by the performance of this micro radio, which requires just one AAA battery. It's quite simply the last word in personal radio. Stereo earphones included.

A 0155

**$79.90**

**digitor**

### Shower Radio RY123

If you like to sing in the shower, why not add the music with this special shower radio? Or use it to catch up on the news while you wash. It's got AM/FM tuning, water-resistant casing, and a handy hook. Just don't run out of hot water! Requires 2xAA batteries.

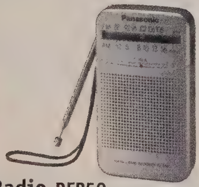
A 4799 **$34 50**

### digitor Pocket Radio UP868

Choose between earphone or speaker operation. With built-in belt clip and retractable earphones, this radio is ideal when you're out and about. AM/FM operation, requires 2xAA batteries.

A 4287 **$19 50**

new for 2002



**Panasonic**

### AM/FM Pocket Radio RFP50

Whether it's a day at the races or an overnight shift, you'll always enjoy having a radio with you. This pocket-sized model features a wrist strap, telescopic antenna, and earphone jack for private listening.

A 9981 **$34 90**

**Panasonic**

### AC/DC Mantel Radio RF2400

With mains or battery power, this AM/FM radio is ideal for every Kiwi home and workplace. Words and music come through loud and clear on the big 10cm speaker. Optional 4xD batteries.

A 2045 **$69 90**

### digitor Shortwave Radio UT778

Enjoy the world of shortwave radio without paying the earth! Horizontal style AM/FM/SW radio with built-in stand and hanger. High sensitivity tuning for perfect reception, and an earphone socket for private listening. Requires 2xAA batteries.

A 4283 **$24 50**

### SONY Pocket Radio ICFS10

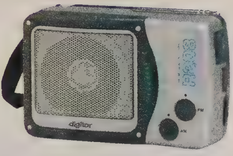
Your perfect companion for news, sports, talkback, and music - wherever you are. This radio features an AM/FM tuner, hand strap, and built-in speaker and earphone jack.

A 0269 **$39 90**

### SONY AC/DC Desktop Shortwave Radio ICF703S

Retro-design styling gives this radio timeless appeal. Enjoy all your favourite AM and FM stations, then enter the world of shortwave! Features include a telescopic antenna, tone control, tuning indicator, and AC/DC operation.

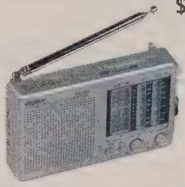
A 4376 **$89 90**



### digitor Long Life Radio R2088

This stylish and reliable portable radio will provide you with up to 200 hours use on just two D-size batteries! High sensitivity ensures great performance on both AM and FM stations. Earphone jack for private listening. Requires 2xD batteries.

A 4284 **$29 50**



### digitor TV Band Radio R909T

Listen to VHF TV channels in addition to your AM/FM favourites. Features a 360 degree antenna, dynamic speaker, handstrap, plus DC and earphone jacks.

A 4289 **$39 50**

**SANGEAN**

### Long Distance Radio PRD3L

Go the distance with this "Outback" radio from Sangean. The LCD display includes a clock and sleep timer. PLL tuning gives long distance AM reception, and auto-scans for AM and FM stations.

A 4282 **$189 50**

new for 2002

**digitor**

### Personal CD Player OP5020

Soak up the pleasures of enjoying your favourite music - without breaking the bank! This all-new personal CD player has enhanced bass response, and includes comfortable headphones.
A 5206

$\$119^{50}$

new for 2002

### Oritron Personal CD Player OP5107

HOLD THE PRESSES! All music lovers, check this out: A personal CD player featuring 40-second anti-shock, programmable playback, dynamic bass boost, earphones with inline volume control, CDR/RW compatibility, and an AC adaptor included! Exclusively available at DSE, it's everything you want in portable CD music, for less than $150!
A 5571

$\$149^{50}$

new for 2002

**Panasonic**

### Personal CD Player SLSX340

This new 2002 model features the latest international styling from Panasonic. Enjoy uninterrupted music through the 48-second Anti-Skip System. With programmable playback and Super X-Bass sound, you can listen to your heart's content. Includes earphones and AC adaptor.
A 9948

$\$189^{90}$

new for 2002

**SONY**

### CD Walkman DE350

Discover the luxury of portable music with the DE350. ESPMAX skip protection offers a new level of technology, providing 6 times faster recovery than the conventional ESP2 system. The new 2002 styling has easy-access controls, and is compact and easy to carry. So grab your favourite CDs and get moving.
A 9992

$\$199^{90}$

new for 2002

**SONY**

### CD Walkman DEJ751

Move and groove on the go with the DEJ751. The skip-free G-Protection technology supplies uninterrupted music as you play all your audio CDs, CDRs, and CDRWs. Enjoy over 30 hours of continuous playback with 2xAA alkaline batteries (required). Music on the run never sounded this good!

A 1447 Silver
A 1448 Blue
A 1449 Yellow

**$259⁹⁰**

new for 2002

**SONY**

### CD Walkman with Car Kit DE356CK

Make the most of your next road trip with the DE356CK. Featuring complete car accessories, Sony will make your next long drive a music lover's dream. Skip-free ESPMAX technology offers longer uninterrupted playback in more active uses. Utilize 4 playback modes as you enjoy up to 33 hours of continuous playback, with Digital Mega Bass to WOW you as you listen.

A 9993

**$259⁹⁰**

new for 2002

**Panasonic**

### CD Player with Tuner SLSV500

When the CD is finished but you still want more, tune into your favourite radio station! This superb personal music machine has everything you'd expect from Panasonic: Programmable playback with Super X-Bass sound and 48-seconds Anti-Skip, plus earphones and AC adaptor included in the box. Now add 20 FM and 10 AM presets, with the built-in digital PLL tuner!

A 9946

**$289⁹⁰**

new for 2002

**Panasonic**

### CD Player with Car Kit SLCT491C

You'll be cruising in seventh heaven, as your favourite music wafts through the cabin. Complete car accessories make this high-spec unit perfect for both the city driver in traffic, and the country driver on the open road. Features include 48-second Anti-Skip System, Super X-Bass, CDR/RW playback, and compact design. So what are you waiting for?

A 9947

**$279⁹⁰**

new for 2002

**SONY**

### CD Walkman DEJ955

Sony's DEJ955 gets you in the groove on the move. Its featherweight ultra-slim circle design makes it easy to carry anywhere. The inline stick remote has a backlit LCD with CD-Text compatibility, and there's an optical MD link for digital transfers. With a charging stand and external 2xAA battery pack, you can power up for over 90 hours of continuous playback! Skip-Free G-Protection keeps your music playing smoothly as you enjoy the luxury of advanced programmable playback.

A 9995

**$449⁹⁰**

new for 2002

**SONY**

### CD Walkman with Car Kit DEJ758CK

Complete car kit accessories and a new in-car remote! This portable player will enhance your travel time as you play all your favourite CDs. Skip-free G-Protection technology keeps your music playing smoothly even when your journey gets rough. Also featuring CDR/RW playback, 48 hours playback on 2xAA batteries, 64 track RMS programming, and 9 playback modes, so you can listen to what you want – when you want – for longer. Transform your next arduous road trip into a relaxing ride with the DEJ758CK.

A 9929

**$299⁹⁰**

## See our website for the latest MP3 hardware from:

PHILIPS SONY COMPAQ imation

imaginative solutions.

## MP3 CD

**digitor**

### Personal MP3 CD Player

CDRW personal CD player that can also decode MP3 files. Play your own MP3 CDs anywhere - with over 100 tracks per disc! It features 45 second anti shock protection, electronic anti-skip protection plus anti-rolling system. Includes AC/DC adaptor and headphones.

A 5547

**$299.50**

new for 2002

**digitor**

### Portable MP3 CD Player Radio

Play your own MP3 CD selections anywhere with this groovy boombox. It's the perfect indoor and outdoor party machine, and includes a remote control for total convenience.

A 5557

**$299.50**

new for 2002

**SONY**

### MP3 CD Walkman DCJ501

Have you heard? Sony's new MP3 CD Walkman has arrived at DSE. In tune with the latest features and designs, the DCJ501 makes listening a pleasure – wherever you are! Featuring MP3 playback capability with ID3 and CD Text support, MP3 bit rates from 8-320 KBPS, and skip-free G-Protection technology. The DCJ501 is the perfect choice for on-the-go audio, with up to 24 hours of continuous playback on alkaline batteries (required).

A 9997

**$399.90**

new for 2002

**SONY**

### MP3 CD Walkman DCJ01

Sony invites you to listen to MP3 magic on the move. Few technological innovations can bring as much pleasure as listening to your own choice of MP3 music. Now you can enjoy your selections wherever you are, and in superb audiophonic quality. The DCJ01 supports ID3 tagging and bitrates from 60 to 320 KBPS. The package includes an inline remote control, rechargeable batteries, and skip-free G-Protection for uninterrupted music in motion.

A 9998

**$599.90**

## NET MD MINIDISC

new for 2002

**SONY**

### NetMD Walkman with Car Kit MZN505CK

NetMD is a groundbreaking advance for MD technology - now you can easily transfer almost any kind of music file from your PC directly to MiniDisc! NetMD Walkman has USB terminals enabling music transfer from PC to MD at up to 32x normal playback speed. Compile your own discs with the music you want to hear, where and when you want to hear it! Includes car connection kit.

A 9978

**$699.90**

new for 2002

**SONY**

### NetMD Walkman MZN707

NetMD is a groundbreaking advance for MD technology - now you can easily transfer almost any kind of music file from your PC directly to MiniDisc! NetMD Walkman has USB terminals enabling music transfer from PC to MD at up to 32x normal playback speed. Compile your own discs with the music you want to hear, where and when you want to hear it! Includes LCD inline remote, rechargeable battery and charging stand.

A 9979

**$799.90**

**digitor**

### Personal Cassette Player

This digitor stereo has a dynamic BassBoost system and professional stereo headphones, giving you great mobile music at an affordable price! Requires 2xAA batteries or a 3V DC adaptor.
A 4899

**$24.50**

new for 2002

**TEAC**

### Personal Radio Cassette Player PP34

Take your own music tapes with you, or enjoy AM/FM radio wherever you are. This stylish personal stereo has excellent sound with a Dynamic Bass System, and includes earphones. Requires 2xAA batteries.
A 2026

**$29.90**

**SONY**

### Walkman WMFX193

Begin your workout right with Sony's WMFX193 Walkman. The music will keep you moving as you tune in to your favourite station with the AM/FM stereo tuner. Enjoy up to 25 hours of extended battery life as you listen to your own tapes in stereo sound. The new slim design makes the WMFX193 easy to carry and it won't weigh you down.
A 4241

**$59.90**

new for 2002

**Panasonic**

### Headphone Stereo RQCR18V

Drift into total music pleasure with this superb portable stereo. Enjoy continuous music on the auto-reverse tape player, or choose your favourite radio programme from the digital tuner with presets. Earphones included.
A 4537

**$89.90**

**SONY**

### Walkman WMFX277

Do you want entertainment that goes where you do? The WMFX277 features a digital AM/FM stereo tuner with 40 presets, a Mega Bass sound system, a digital LCD Display with a battery level indicator and up to 24 hours extended battery life for tape playback.
A 0382

**$99.90**

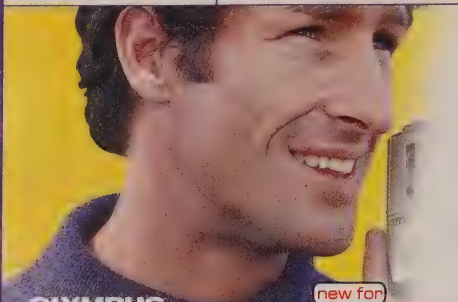
**SONY**

### Walkman WMFX493

The ultimate Walkman for music lovers and audiophiles alike. Slip it in your pocket and use the feather-touch controls to manoeuvre your sound experience easily. Also featuring a digital AM/FM stereo tuner, a remote control on the headphone cord, and auto reverse, the WMFX493 provides awesome audio on the go.
A 5830

**$169.90**

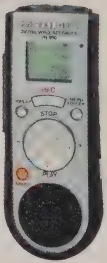
## DIGITAL



**OLYMPUS**

new for 2002

### Digital Voice Recorder VN900



How can you simplify your life? Record meetings, school lectures, or study groups for up to 90 minutes. Leave yourself messages on things you need to do on a particular day or create a shopping list for the week. Look up a phone number or address you stored in one of four available folders. And do so whenever and wherever you want. The ultra-compact and lightweight VN900 digital voice recorder is always just a shirt or pants pocket away.

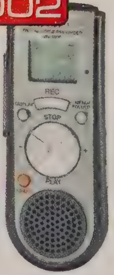
A 0273

**$199.90**

**OLYMPUS**

new for 2002

### Digital Voice Recorder VN1800



On the outside it's a beautifully designed, stunningly gold, compact and lightweight digital voice recorder that fits perfectly in your hand. On the inside, it's packed with amazing features like the ability to record 3 hours of audio, 4 folders to store and organize messages, and up to 20 customizable alarms that can be played automatically. Put them together and the VN1800 becomes the perfect solution for all of your recording needs, and proves that something 'little' can indeed provide something 'big'.

A 9755

**$249.90**

**digitor**

### Digital Notetaker MIRX160

You won't need to buy tapes, because this recorder stores up to 128 separate messages digitally! Hold over 100 minutes of recordings in the palm of your hand, with simple one-handed operation and optional voice activation. With LCD display and wrist strap.

A 5343

**$189.50**

### OLYMPUS Digital Voice Recorder DW90

new for 2002

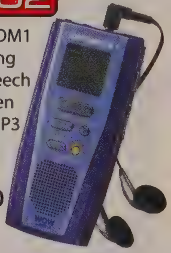
Students, journalists and business users alike can now record and download information to a PC easily and affordably, using the DW90 - a digital voice recorder with PC connection for under $300. Whether you wish to store a class lecture, or email an interview to your editor, the USB cable lets your DW90 connect directly to your computer, providing fast and efficient WAV file transfer.

A 5796

**$299.90**

### OLYMPUS Digital Recorder & MP3 Player DM1

new for 2002



Designed with the business user in mind, the DM1 lets you record up to 22 hours of dictation using the 64MB card and quickly download your speech files to a PC using the included USB cable. When work is done, you can upload over 1 hour of MP3 or WMA music files and listen in high-quality, clear 3D sound via the built-in WOW sound system.

A 5797

**$899.90**

## STANDARD CASSETTE

**digitor**

### Standard VAC Notetaker MCR979

This standard-size cassette recorder is remarkably well-featured for its price. There's optional voice activation, and variable speed playback, making it ideal for recording and reviewing lectures. It has a built-in flat microphone, and an external microphone jack supporting remote switching. 3V DC input jack. Requires 2xAA batteries.

A 5355

**$69.50**

**SONY**

### VOR Cassette-corder TCM20DV

Double recording time fits up to 3 hours on a normal C90 tape! In addition this unit has ClearVoice and voice-activated recording, variable speed playback, and external microphone and earphone jacks.

A 5823

**$99.90**

**SONY**

### Cassette-corder TCM343

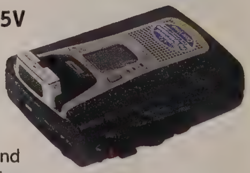
This notetaker features one-touch recording, LED battery level indicator, and a mono earphone jack. Uses standard audio cassettes that you can play back in any tape deck.

A 5542

**$79.90**

**SONY**

### VOR Cassette-corder TCM465V



A great tool for speakers. This notetaker has a pop-up microphone with automatic sensitivity - making it perfect for recording lectures. The cue marker, tape counter, one-touch operation, and variable playback also make reviewing simple. Plus there is voice activation, battery indicator, auto shut-off, and separate microphone and earphone jacks.

A 5825

**$189.90**

## MICROCASSETTE

**digitor**

### Microcassette Notetaker WD300

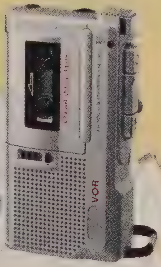
An affordable microcassette recorder. Great for taking notes in meetings and lectures. Ergonomic design with 2-speed recording, voice activation, tape counter, external microphone and headphone jacks. Requires 2xAA batteries.
A 5341

$79.50

new for 2002

**SONY**

### VOR Microcassette-corder M560V



Features include record/battery indicator, 30-hour battery life, Clear Voice Plus recording system providing greater clarity, and tape counter. Operation is made easy with one-touch recording. Get all the facts on tape with the M560V.
A 5584

$119.90

**SONY**

### VOR Microcassette-corder M740V

Designed with you in mind! Auto-reverse provides uninterrupted recording and playback on both sides of the tape. Fast playback (+20%) makes reviewing easy, and the battery level indicator alerts you to low power. Selectable VOR only records when audible sound is present.
A 5568

$159.90

**SONY** VOR

### Microcassette-corder M200MC

Select your recording environment for the best possible result! This microcassette recorder features a built-in zoom microphone with 3 modes: Lecture, Meeting, and Dictation. It's also feature-packed with all the convenience of voice activation, auto-reverse, fast playback, and a tape counter for indexing.
A 5569

$229.90

**SONY**

new for 2002

### Microcassette-corder M455

Leave handwritten notes behind for good! Get the Sony M455 and get your next business meeting on tape! Featuring 30-hour battery life, the Clear Voice recording system, a built-in microphone, one-touch recording, cue and review slide control, and an LED battery level indicator. There is no better way to record your meeting minutes.
A 5583

$89.90

**OLYMPUS**

### Pearlcorder J300

Compact, stylish, and loaded with features. The J300 is smaller and more ergonomic than other microcassette recorders, making it easy to carry and easy to use. It's voice-activated, has fast playback (+25%), and the dual tape speeds allow 3 hours of voice on one 90-minute tape!
A 0271

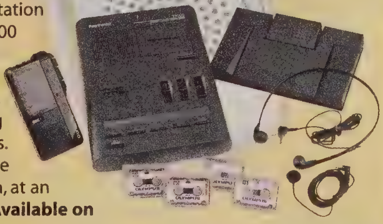
$139.90

### OLYMPUS Pearlcorder J500

Superb functionality in a sleek ergonomic design. Locate your recordings easily with the indexing system or the tape counter. Variable voice activation, and dual recording speeds to double your tape capacity. Built-in microphone and speaker, plus external microphone and earphone jack.
A 0272

$169.90

### OLYMPUS Microcassette Business Pack



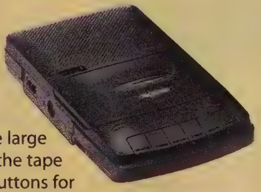
This complete dictation set includes a T1000 transcriber, J300 notetaker, telephone pickup, 3 tapes, a cleaning tape, and batteries. It's your total office recording solution, at an affordable price. **Available on special order only.**
A 5474

$799.90

## DESKTOP

**digitor**

### Desktop Tape Recorder NE50



Convenient desktop recording and playback at an affordable price. The large speaker provides clear sound, and the tape counter tracks your progress. Big buttons for simple operation, headphone and microphone jacks built-in, and an AC power cord included. Optional 4xC batteries.
A 4031

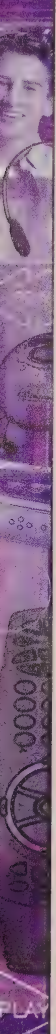
$79.50

**Panasonic**

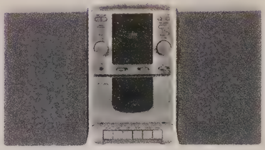
### Desktop Tape Recorder RQ2102

Perfect for educational use! This easy-to-use cassette deck has reliable Panasonic performance, and features a 3-digit tape counter, retractable carry handle, and an AC power cord for battery-free operation.
A 4534

$89.90



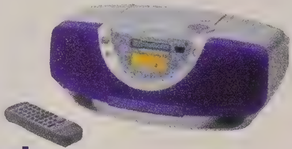
## SHELF SYSTEMS



**Oritron CD Micro System OP291**

This is the affordable lifestyle music system for your home. It is small enough to discreetly fit in with your decor, while still delivering great sound on request! Micro system includes CD player, tape deck, AM/FM tuner, and separate speakers.

A 5277 $199⁵⁰



**Panasonic CD Radio Cassette RXEX1**

This stunning unit is the ultimate portable sound appliance. With a design that belongs in the Museum of Modern Art, it also has features that will blow you away: Automatic digital tuner with 24 presets, feather-touch keys plus a full-function remote, sleep timer, slot-in tape deck, and motorized front-loading CD with CDR/RW compatibility. Excellent sound is also assured, with a Harmonic Enhancer, "Sound Virtualizer" circuit, 4-preset equalizer, and Acoustic Separator Cabinet with Bass Reflex ports.

A 2043 $299⁹⁰

new for 2002

**TEAC Micro System MCD58**

An affordable CD shelf system with tuner and tape deck. Contemporary design with wooden cabinet speakers for excellent sound reproduction.

A 2038 $219⁹⁰

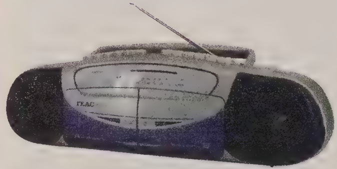
new for 2002

**TEAC Micro System MCD68**

A premium sound system with all the features you desire. The 2002 styling incorporates a vertical CD player with motorised lid, while the digital tuner has 20 presets for all your favourite stations. Add in a tape deck, preset equaliser, remote control, and wooden cabinet speakers. Now that's a recipe for the complete music experience!

A 2039 $299⁹⁰

## PORTABLE AUDIO



**TEAC Portable Twin Tape Radio Cassette PC250**

This stylish portable unit is just the thing for tape dubbing. Compile your own cassettes, or simply enjoy the stereo sound from the AM/FM tuner.

A 2025 $79⁹⁰

new for 2002

**TEAC Portable CD System PCD190**

A 16-track programmable CD player plus tape deck and AM/FM tuner. This unit also has a Bass Boost System for even better sound, plus new 2002 styling. Take it with you and the music will follow!

A 2032 $149⁹⁰

**SONY Mono Radio Cassette CFM10**

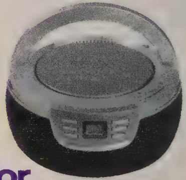
When you want reliable sounds without the bulk, this is the unit for you. With built-in microphone, earphone jack, and AC power cord.

A 5811 $89⁹⁰

**Oritron Portable CD Stereo OP1033**

Check out the digital AM/FM tuner, BassBoost stereo sound, auto-stop tape deck, and top-loading CD player with CDRW compatibility. Robust yet stylish, it's a first-class portable music machine!

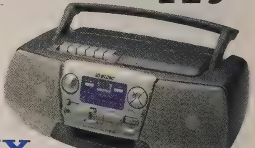
A 4262 $189⁵⁰



**digitor Portable CD Radio CD128**

This all-new machine brings the future into your home at an affordable price. Programmable CD player, AM/FM tuner, and AC/DC operation.

A 5545 $129⁵⁰

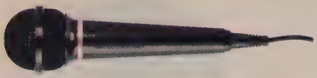


**SONY CD Radio Cassette Recorder CFDV7**

Get your BBQ or beach party started on the right note! 70 watts of PMPO power and a Bass Reflex Body deliver the quality of sound that you'd expect from Sony. Great for indoor use too, with synchronised CD-tape dubbing, and an AM/FM tuner.

A 5607 $199⁹⁰

## HANDHELD MICROPHONES

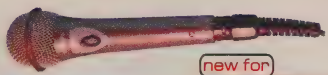


**digitor** Dynamic Microphone

Entry level unidirectional microphone for individual use. 600 ohm impedance, -76dB sensitivity. Frequency response: 80-12,000Hz.
C 1539
$19.50

**digitor** Omnidirectional Cassette Microphone

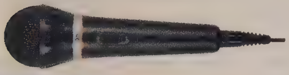
Suitable for home use and small group recordings. 250 ohm impedance, -80dB sensitivity. Frequency response: 100-9,000Hz.
C 1532
$29.50



new for 2002

**PHILIPS**
Dynamic Microphone MD150

With an integrated windshield, on/off switch, detachable 5m Cannon cable, and 3.5-6.3mm plug adaptor.
C 1022
$34.90

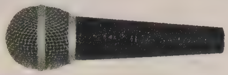


**SONY**
Dynamic Microphone FV220

Unidirectional microphone with Alnico magnet for high quality sound. Talk switch, 3m cord with unimatch 3.5/6.5mm plug adaptor. Frequency response: 100-12,000Hz
C 1018
$39.90

**digitor**
Deluxe Dynamic Microphone

Superior quality unidirectional microphone, ideally suited to vocal performances. Excellent recording at an affordable price. 600 ohm impedance, -74dB sensitivity. Frequency response: 80-12,000Hz.
C 1534
$59.50

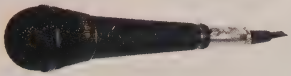


**digitor**
Professional Dynamic Microphone

A superb unidirectional microphone with a wide frequency range to capture all the highs and lows. 500 ohm impedance, -76dB sensitivity. Frequency response: 40-15,000Hz.
C 1537
$79.50

**digitor**
Metal Dynamic Microphone

Top quality recording with the added strength of metal casing. This hi-fi microphone can withstand the rigours of heavy duty use. 500 ohm impedance, -76dB sensitivity. Frequency response: 80-18,000Hz.
C 1535
$89.50



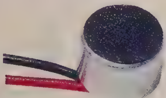
**digitor** Professional Cardioid Vocal Microphone

Heavy duty diecast zinc housing with 4.5m cord. This is the professional's choice for sound reproduction and recording - on stage or in the studio. 500 ohm impedance, -75dB sensitivity. Frequency response: 50-16,000Hz
C 1536
$99.50

**Avico FM Wireless Microphone WFM100**

Have your say (or sing a song) without being tied to a cord! This cordless dynamic microphone transmits to any FM receiver via the built-in telescopic antenna. Optional 3m corded operation with 6.5mm plug. Requires 2xAA batteries. • Impedance: 600 ohm • FM Frequency: 90MHz (variable)
C 1583
$69.50

## SPECIAL MICROPHONES



**digitor** Condenser Microphone Insert EM92862

Omnidirectional electret insert with leads. <2,000 ohm impedance, -62dB sensitivity. Frequency response: 50-12,500Hz
C1163
$5.80

**digitor** Electret Condenser Microphone EM240

This unidirectional microphone is a good soloist's choice for studio and broadcast applications. Includes mounting thread. 600 ohm impedance, -75dB sensitivity. Frequency response: 50-16,000Hz
Requires 1xAA battery
C 1538
$69.50

**digitor** Lapel Condenser Microphone EM070

Omnidirectional tie-clip microphone, ideal for personal vocal use and public speaking. 3.5mm plug, plus a battery operated pre-amp with 6.5mm plug.
1000 ohm impedance, -65dB sensitivity. Frequency response: 20-16,000Hz
C 1533
$34.50

**Panasonic** Stereo Lapel Microphone RPVC200

Low profile, high quality! Ideal for notetakers and camcorders. Built-in tie clip.
C 9223
$39.90

**SONY** Electret Condenser Microphone ECMF8

Omnidirectional desktop microphone that is ideally suited to recording meetings. 1m cord, battery not included. Frequency response: 50-12,000Hz
C 4453
$59.90

## EARPHONES

### digitor

**Stereo Earphones**

STEREO EARPHONES
digitor

With no headband you'll hardly realise you're wearing them. Complete with spare earpads, 3.5mm plug and 6.5mm adaptor.
C 4135 $14.50

new for 2002

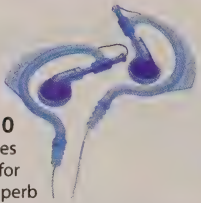
### PHILIPS

**BassWave EarGear HE555**

With BassWave design for turbo-charged bass! Includes carrycase for easy storage. Frequency response: 8-24,000Hz.
C 4264 $29.90

### PHILIPS

**Sports Eargear HS300**



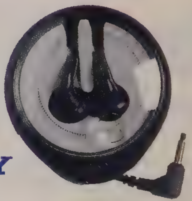
Colourful earphones that are designed for active lifestyles. Superb wearing comfort from the specially shaped earmoulds and ergodynamic ring. Ideal for all portable audio products, with powerful performance from neodymium magnets. Frequency response: 20-20,000Hz.
C 4601 $19.90

new for 2002

### PHILIPS

**Splashproof EarGear HS710**

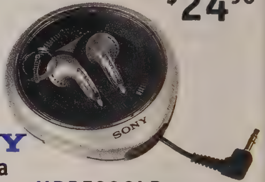
Powerful Neodymium speakers deliver excellent sound in all weather conditions. Frequency response: 10-22,000Hz.
C 4265 $39.90



### SONY

**Fontopia Earphones MDRE828LP**

Dynamic silent cap earphones with 13.5mm diameter driver units and twin turbo ducts. 1m Y-shaped cord with nickel-plated 3.5mm plug, and a compact case included. Frequency response: 16-22,000Hz.
C 4450 $24.90



### SONY

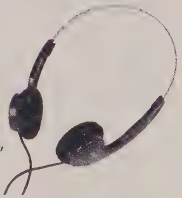
**Fontopia Earphones MDRE838LP**

Dynamic silent cap earphones with 13.5mm diameter driver units and twin turbo ducts. Thin housing construction. 1m Y-shaped cord with nickel-plated 3.5mm plug, and a compact case included. Frequency response: 16-22,000Hz.
C 4402 $59.90

## LIGHTWEIGHT HEADPHONES

### digitor

**Lightweight Headphones**



Ideal for personal and portable stereos, or your home hi-fi. These inexpensive stereo headphones come with adjustable headband and replaceable foam earpads. 32ohm impedance, frequency response: 20-18,000Hz.
C 4142 $12.50

### PHILIPS

**Lightweight Headphones HL120**

Lightweight, comfortable headphones with ultra-modern design and a sturdy metal headband. Ideal for portable and personal stereo equipment. Acoustic reflector for enhanced bass. Frequency response: 18-20,000Hz.
C 0001 $14.90

### SONY

**Open Air Headphones MDR101**

Lightweight stereo headphones with a comfortable wide moulded headband. 30mm diameter driver units. 1m cord with 3.5mm plug. Frequency response: 18-20,000Hz.
C 4452 $24.90

### digitor

**Deluxe Lightweight Headphones**

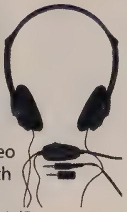
The 27mm drivers cover the entire ear without bulk. They come with a 3.5mm plug for your personal stereo equipment and a 6.5mm adaptor for your home stereo. 32ohm impedance, frequency response: 20-18,000Hz.
C 4146 $19.50

### SONY

**Vertical Headphones MDRW08L**

Streamlined for a comfortable fit, these headphones give a neat performance. Vertical ear-conscious design, with 13.5mm diameter driver units and twin turbo ducts. 1.2m cord with 3.5mm stereo plug. Frequency response: 10-24,000Hz.
C 4418 $29.90

## TV HEADPHONES



**digitor**

### TV Headphones *With Volume Control*

Sit back, relax, and watch TV without disturbing others. Features an extra long cord plus mono/stereo adaptor. 34mm drivers with neodymium magnets, 32ohm impedance and 102dB sensitivity. Frequency response: 20-20,000Hz.

C 4623

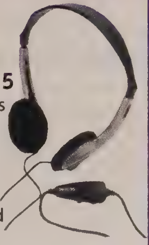
**$27.50**

### digitor Deluxe TV Headphones *With volume control!*

Get just the right volume with separate left and right inbuilt volume controls. They're just the thing for private listening, with extra padding for greater comfort and large 40mm speaker drivers. They come with a 3m cable, gold plated 3.5mm plug and 6.5mm adaptor. 32ohm impedance, frequency response: 20-20,000Hz.

C 4162

**$44.50**



**PHILIPS**

### Lightweight TV Headphones HL135

Comfortable headphones for audio or TV, with 7m cord including built-in volume control and mono/stereo switch. Flexible plastic headband and samarium cobalt magnet circuit for superb sound performance.

C 9202

**$29.90**

**PHILIPS**

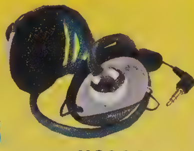
### Fullsize TV Headphones HP170

Leather inner headband and full-size ear-cushions ensure miniumum sound leakage and maximum comfort. Powerful 40mm neodymium drivers and a 3m OFC cable deliver excellent sound performance. Integrated volume controls and a mono/stereo switch are perfect for use with your TV, and a 6.3mm plug adaptor is also included.

C 4261

**$49.90**

## -NECKBAND HEADPHONES-



**PHILIPS**

### Foldable Eargear HS800

These headphones are the last word in style and comfort! 106dB sensitivity with acoustic reflector for enhanced bass. The 1.2m cord has a gold-plated plug and winds neatly around the folding neckband for extremely compact storage. Frequency response: 10-24,000Hz.

C 1023

**$49.90**

**SONY**

### Street Style Headphones MDRG56V

The behind-the-neck headband supports 30mm diameter driver units with turbo acoustic ducts. Gold plated 3.5mm stereo plug, 1.5m cord and volume control. Frequency response: 16-20,000Hz.

C 9201

**$69.90**

## MID/FULL SIZE HEADPHONES

**PHILIPS**

### Fullsize Headphones HP140

49mm ferrite drivers and full-size leather-look ear cushions make these headphones great value for money. 2m cable, 6.3mm plug adaptor included.

C 4221

**$39.90**

**SONY**

### Digital Studio Monitor Headphones MDRV250

Portable folding design with reversible earcups. Dynamic 30mm diameter driver units with volume control, 3m cord, and unimatch plug included. Frequency response: 16-22,000Hz.

C 4423

**$79.90**

**digitor**

### Hi-Fi Stereo Headphones

Lightweight and very comfortable, these headphones are perfect for listening to your CD player or home stereo. They have large 40mm speaker drivers which give exceptionally good sound. 3.5mm plug with 6.5mm adaptor included for connection to your home stereo. 32ohm impedance, frequency response: 20-20,000Hz.

C 4148

**$49.50**

**PHILIPS**

### Performance Headphones HP550

Hearing is believing! Amazing bass response in a comfortable padded design that also folds away. Powerful 40mm neodymium drivers provide 102dB sensitivity at 32ohm impedance. 1.5m cord with 6.3mm plug adaptor included. Frequency response: 10-28,000Hz.

C 9221

**$89.90**

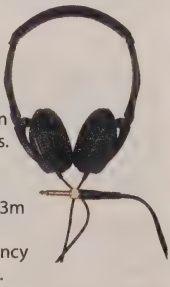
**digitor**

### Pro Monitor Hi-Fi Headphones

High-quality studio monitor headphones with 40mm speaker drivers that are designed to get the best from digital source material such as CDs. They're very comfortable with fully adjustable headstrap. They come with a gold plated 3.5mm plug and 6.5mm adaptor. 64ohm impedance, frequency response: 20-22,000Hz.

C 4154

**$69.50**



**SONY**

### Digital Studio Monitor Headphones MDRV300

Portable folding design with reversible earcups. Dynmaic 30mm dome driver units with neodymium magnets, 3m cord, and gold plated unimatch plug. Frequency response: 16-22,000Hz.

C 4451

**$119.90**

## WIRELESS HEADPHONES

### Arkon Infrared Mono Headphones IR530

No wires, no tangle! Move freely within your listening area, and listen to your TV or other mono audio source without disturbing others. Maximum range 7m. Requires 2xAAA batteries.

C 4270

**$49.50**

### PHILIPS Cordless IR Headphones HC065

Lightweight infrared cordless system with high quality stereo sound performance. Comfortable to wear and suitable for all home audio/video systems. 7m working range. Requires 2xAAA batteries.

C 4263

**$79.90**

### Arkon Infrared Stereo Headphones IS550

Comfortable private listening with the convenience of wireless stereo transmission. Features include volume control, and a maximum range of 7m. Requires 2xAAA batteries.

C 4271

**$69.50**

### PHILIPS Rechargeable Cordless IR Headphones HC070

With built-in recharge circuit and rechargeable batteries included. Enjoy high quality stereo sound in comfort and privacy. Suitable for all home audio/video systems. 7m working range.

C 4262

**$99.90**

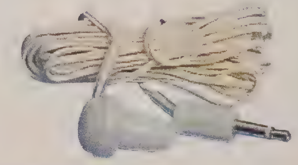
### PHILIPS Rechargeable Cordless FM Headphones HC480

Super lightweight cordless FM headphones with award-winning design. Enjoy virtually unlimited freedom of movement with an operating range of up to 100m. The self-adjusting inner headband and full-size earpads provide optimum wearing comfort. Rechargeable system includes batteries.

C 4285

**$199.90**

## SINGLE EARPIECES

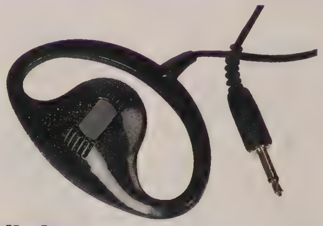


### digitor Magnetic Earpiece

A discreet earpiece for private listening. 3m cable with 3.5mm mono plug.

C 2760

**$8.80**

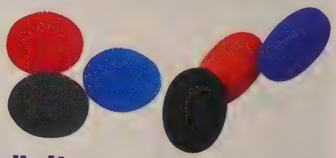


### digitor Secure Earpiece

Stays in place when you're on the move! Perfect for security staff, sports fans, and radio operators. 3.5mm mono plug.

C 4536

**$17.50**



### digitor Replacement Earpads

Three pairs of replacement earphone pads in assorted colours.

| 13mm earphone | 27mm headphone |
|---|---|
| C 4182 | C 4184 |
| **$8.80** | **$9.80** |

### digitor Crystal Earpiece

Ideal for kitset projects or radios. Ergonomic design with 3.5mm mono plug.

C 2765

**$9.80**

### Pillow Speaker

Simply plug into a radio, tune in your favourite station, and tuck it under the pillow. Sweet dreams!

C 2223 **$17.50**

## PERSONAL SPEAKERS

### SONY Personal Speakers SRSP7

These passive speakers feature bass reflex ducts for deep bass in a small size. No battery is required, so just hook them up to your personal stereo and get ready to groove. 3.5mm plug.
C 4177 **$34.90**

### digitor Mini Stereo Speaker Set

Share the sounds from your personal stereo with others, or simply take a break from the headphones! These low-profile speakers fit easily in your bag, and provide good sound performance. 3.5mm plug.
C 4159 **$39.50**

### SONY Personal Speakers SRSA5S

This active speaker set is compact and lightweight. Each speaker is magnetically shielded, so they're safe to use with your PC. 1W output, 3.5mm plug, requires 2xAA batteries.
C 4174 **$44.90**

### SONY Personal Speakers SRSA37

Let the sounds of your personal stereo fill the room! These magnetically-shielded active speakers have a total power output of 3 watts, and Mega Bass for great bass sound. They have their own volume control, and can be either battery (6xAA) or mains powered.
C 4436 **$79.90**

## OUTDOOR

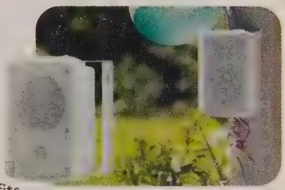
### digitor 2-Way Outdoor Speakers 13cm DCP505

Add the pleasures of music to outdoor living areas. 13cm carbon cone woofer with 7.8oz magnet, 1.25cm neodymium tweeter. 25W RMS, 4 ohm impedance, 91dB sensitivity, 0.77kg, frequency response: 130-20,000Hz.
C 2155 **$69.50**

digitor
digitor

### digitor 2-Way Outdoor Speakers 16cm DCP605

Perfect for house or boat, these water-resistant speakers let you put the music exactly where you want it. 16cm carbon cone woofer, 1.25cm neodymium tweeter. 30W RMS, 4 ohm impedance, 89dB sensitivity, 1.05kg, frequency response: 95-20,000Hz.
C 2156 **$89.50**



### digitor 2-Way Waterproof Outdoor Speakers DC4400W

Fully sealed moisture and UV-resistant cabinets, with rustproof aluminium mesh grilles and mounting brackets. Unique wedge shaped design fits nicely in corners and under eaves. 60W RMS, 8 ohm impedance, 145x202x121mm WHD. Frequency response: 70-20,000Hz.
A 9776 **$99.50**

new for 2002

### Optimus Indoor/Outdoor Speakers XTS9

These moisture-proof speakers let you put the music anywhere you want it! They have 133mm polycone woofers and 38mm dome tweeters, which can handle 100 watts of power with a frequency range of 110-20,000Hz. H23xW15xD16cm.
A 1336 **$199.50**

## INDOOR

### digitor Rear Speakers DC3070

Ideal as rear speakers in your home theatre system. Complete with wall or stand mounting brackets. Features 50W peak power (25W RMS) per speaker, two-way bass reflex system, 8 ohm impedance, 9cm long excursion woofer, 2.5cm super polymer tweeter, heavy-duty ABS cabinet, pop-off wire mesh grilles, spring-loaded terminals, 121x191x197mm (WHD). Frequency response: 70-20,000Hz.
A 9765 **$99.50**

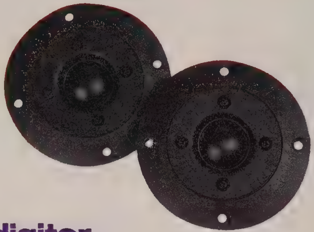
## Whether you're replacing blown speakers or building your own, you'll find what you need at Dick Smith Electronics.

**digitor**

### Dome Tweeters 20mm

Input: 10W max, 5W RMS
Frequency response: 1,500-20,000Hz
Impedance: 8 ohms
Sensitivity: 88dB
Dimensions: 89x21mm
C 2154

**$49.50**



**digitor**

### Dome Tweeters 25mm

Input: 20W max, 10W RMS
Frequency response: 1,500-20,000Hz
Impedance: 8 ohms
Sensitivity: 91dB
Dimensions: 100x25mm
C 2153

**$59.50**

**digitor**

### Midrange Drivers 100mm (4")

Input: 10W max, 5W RMS
Frequency response: 100-12,000Hz
Impedance: 8 ohms
Sensitivity: 84dB
Dimensions: 116x48mm
C 2152

**$69.50**

**digitor**

### Woofer Driver 200mm (8")

Input: 50W max, 25W RMS
Frequency response: 40-7,000Hz
Impedance: 8 ohms
Sensitivity: 88dB
Dimensions: 216x92mm
C 2151

**$79.50**

**digitor**

### Woofer Driver 250mm (10")

Input: 80W max, 40W RMS
Frequency response: 30-5,000Hz
Impedance: 8 ohms
Sensitivity: 90dB
Dimensions: 270x109mm
C 2150

**$99.50**

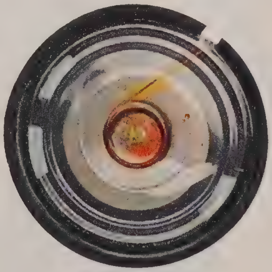
DICK SMITH ELECTRONICS
Black Speaker Grille Cloth

**digitor**

### Black Speaker Grille Cloth

Are your speaker enclosures looking a little shabby? This quality speaker grille cloth is easy to fit and can have those old boxes looking like new. 1.5x1m pack.
C 2095

**$24.50**



### Mini Speaker 27mm

Great for projects where space is precious. With 8 ohms impedance and maximum power output of 0.25W. Depth 8mm.
C 2208

**$4.80**

### Mini Speaker 57mm

Ideal for small radios and a wide range of kits. Maximum power: 0.25W. Impedance: 8 ohms.
C 2222

**$5.80**

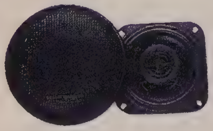
### Horn Speaker 5"

Ideal for outdoor PA use or boating, this is a waterproof horn speaker at an incredibly low price! The speaker's impedance is 8 ohms and it has a 10W capacity. Complete with mounting bracket and cable with 3.5mm plug.
C 2705

**$29.50**

## CAR SPEAKERS

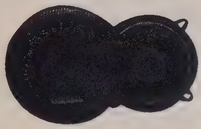
### 4" Car Speakers JR202



60 watt 2-way speakers. 10cm diameter, frequency response: 50-20,000Hz.
A 9656

**$49.50**

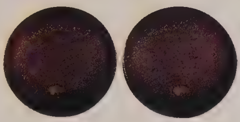
### 5.25" Car Speakers JR404



75 watt 2-way speakers. 13cm diameter, frequency response: 45-20,000Hz.
A 9666

**$59.50**

### 6.5" Car Speakers JR606



150 watt 3-way speakers. 17cm diameter, frequency response: 35-22,000Hz.
A 9676

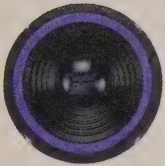
**$89.50**

### 6x9" Car Speakers JR909

200 watt 3-way speakers. 15x23cm diameter, frequency response: 30-22,000Hz.
A 9681

**$99.50**

### Subwoofer AW100



- Diameter 10" (25.4cm)
- Pmax maximum input power 250W
- Nominal input power 80W
- Frequency response 30-4,000Hz
- fs resonance frequency in free air 32.81Hz
- Re voice coil electrical resistance 4.14 ohms
- Qms mechanical Q value 6.27
- Qes electrical Q value 0.68
- Qts total Q value 0.61
- Vas equivalent volume 94.82l
- Cms mechanical compliance of suspension 0.68m/N
- Mms moving mass including surrounding air 34.49g

A 0706

**$49**

### Harmony Deluxe Amplifier Installation Kit

**CONTENTS:** 6m red 10G high current OFC super flex power cable; 4.5m gold 2xRCA to 2xRCA cable; 600mm black 10G ground cable; 4.8m blue remote turn-on lead; 4.8m black remote ground lead; 1.8m split loom tubing

**ACCESSORIES:** Butt connectors (2); Fork terminals (7); Small ring terminal; Medium ring terminal; Large ring terminal 30A fuse; Crimp cap joiners (7); Snap grommet; Grounding screws (3); Cable ties (10); Blade fuse holder
A 7650

Harmony
DELUXE AMPLIFIER INSTALLATION KIT

**$49**

## RADAR DETECTORS

Uniden radar detectors have been designed, manufactured and calibrated specifically for New Zealand conditions to provide warning of all radar and laser based detection systems currently available: X (TR6), K (Hawk), Ka (Mobile Speed Camera), Ka (Eagle), Laser, SWS.

Pre-loaded with NZ GPS data!
new for 2002

### Uniden GPS Radar Detector RD550

The ultimate in radar detection. The GPSRD is more than just a premium multiple-wavelength radar detector. It's also equipped with a Global Positioning System and has digital direction, latitude/longitude, elevation, speeds, distance and ETA displays.
A 9203

**$899.90**

### Uniden Radar Detector SWS5000NZ

All the features of the SWS2500, plus Digital Voice, dot matrix LED display with scrolling messages, 71 visual alarms and 5 different audio tones.
A 0262

**$499.90**

### Uniden Radar Detector SWS2500NZ

City/Highway system with X-band delete, volume control with auto mute, 4 audio tones, and 5 visual alarms. Signal strength meter and quick release windscreen mount.
A 0263

**$399.90**

## CD CAR KITS

**digitor**

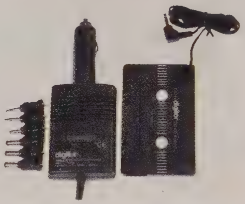
### Car Cassette Adaptor

CD/MD CASSETTE ADAPTER

Enjoy CD music in the car by connecting your personal CD player to your existing car stereo.
C 9215 $39.50

**digitor**

### Car Cassette Adaptor and Power Supply



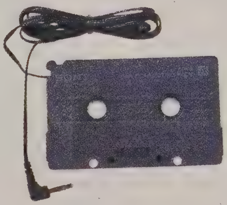
The total solution for connecting your personal CD player to your car stereo. Includes tape adaptor and cigarette lighter power supply.
C 9214 $44.50

### TEAC CD Car Kit CK10

Connect your personal CD player to your car stereo. Easy to use, and has a selection of plugs to fit most players.
C 3124 $49.90

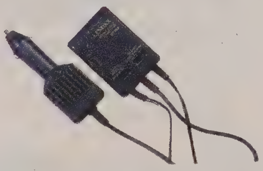
**SONY**

### CD Car Adaptor CPA9



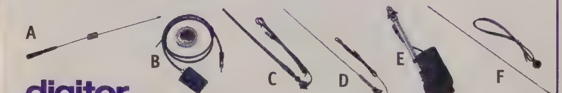
Play your MiniDisc or CD Walkman through your car radio cassette player. Connects the headphone or lineout jack to the cassette deck in your head unit.
A 5241 $54.90

### Lenoxx SoundFeeder SF100



Use your portable CD player with any FM car radio! This unit is completely portable and reduces theft. It powers your CD player and transmits on FM, so no cassette adaptor is required. Easy installation.
C 9207 $49

## ANTENNAS



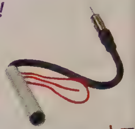
**digitor**

| | | |
|---|---|---|
| A. Universal Replacement Antenna 16" | A 7314 | $9 |
| B. Internal Windscreen Car Antenna | A 7301 | $19 |
| C. "Rubber Ducky" Car Antenna | A 7345 | $9 |
| D. High Efficiency Car Antenna | A 7347 | $29.50 |
| E. Electric Car Antenna with Automatic Control | A 7366 | $59.50 |
| **MOBILE ONE** | | |
| F. Mobile One Car Antenna 30" Whip | A 7310 | $49.50 |

## BAND EXPANDERS

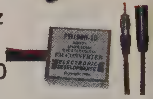
*Receive New Zealand FM stations on your imported vehicle radio!*

### Slimline FM Band Expander



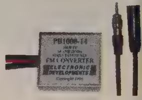
Low-profile. Standard antenna plug, 10MHz frequency shift.
A 3002 $29.90

### EDL Standard FM Band Expander - 10MHz



Features standard antenna connections, with a convenient 10MHz frequency shift.
A 3000 $39.90

### EDL Standard FM Band Expander - 14MHz



Features standard antenna connections, with a full-range 14MHz frequency shift.
A 3005 $39.90

### EDL 12V/24V Nissan FM Band Expander

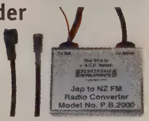
14MHz converter. Has Japanese Nissan antenna connections, and accepts 12 or 24 volt power input.
A 4003 $39.90

### EDL Deluxe FM Band Expander

Jap to AUS FM Radio Converter Model No. P.B.2000

Delivers you the purest possible FM signal. For European antenna connectors only.
A 3009 $89.90

### EDL Deluxe European FM Band Expander



Delivers you the purest possible FM signal. Switchable 10MHz/14MHz shift.
A 3011 $89.90

## CAR AUDIO ACCESSORIES

### digitor Noise Suppressor Capacitor 0.5uF

Filters RF interference.
A 7902 $9.50

**digitor**

### Car Antenna Extension Lead 1m

Low-loss cable with standard connectors.
A 7450 $9

### DSE Universal Mounting Bracket Set

A seven piece set to suit most installations.
A 7200 $9

### digitor Line Out Converter

Converts head unit speaker outputs to amplifier inputs.
A 7303 $39.50

### digitor Ground Loop Isolator

Isolates ground loop interference in amplifier circuits.
A 7305 $39.50

### digitor Power Noise Filter 10A

Suits low-powered car stereo systems.
A 7304 $39.50

### digitor Power Noise Filter 30A

Suits high-powered head units and amplifiers.
A 7302 $49.50

## VIDEO ACCESSORIES

**digitor**

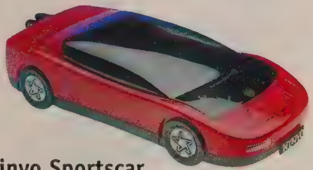
### VHS-C Camera Tape Adaptor

Play your Compact VHS camera tapes in your home VCR. (Not suitable for 8mm tapes).
C 3022 **$49.50**

**digitor**

### Battery-operated VHS-C Camera Tape Adaptor

Play your Compact VHS camera tapes in your home VCR. Deluxe model with battery-powered tape spooling. (Not suitable for 8mm tapes).
C 3018 **$69.50**



### Kinyo Sportscar VHS Tape Rewinder

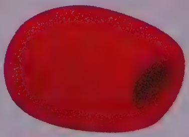
Save wear and tear on your VCR by rewinding tapes in this cool car-shaped rewinding machine. And start playing another video immediately!
C 3716 **$59.50**

### Video Tape Rewinder and Cleaner

Protect your precious tapes by rewinding them in this handy unit, which also cleans off mould and residue. And it frees up your VCR for non-stop video playing!
C 3712 **$99.50**

**Replacement Rollers & Fluid**
C 3713 **$19.50**

## MICROPHONE ACCESSORIES



**DSE**

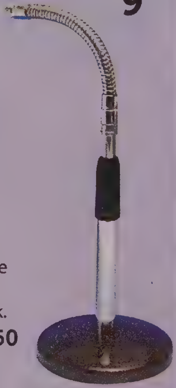
### Microphone Windscreen

Thick, durable foam cover for standard-sized handheld microphones. Minimises "wind roar" during outdoor recording.
C 1265 **$7.50**

**DSE**

### Microphone Holder

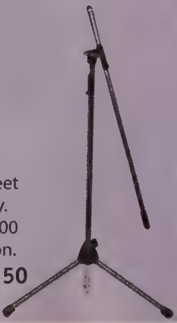
Simply clips onto microphone stands. With adjustment screw for compatibility with most microphone sizes.
C 1272 **$9.50**



**DSE**

### Microphone Desk Stand

Metal desk stand with weighted base for stability, and flexible goose neck.
C 1602 **$29.50**

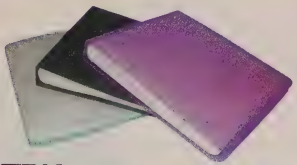


**DSE**

### Microphone Floor Stand

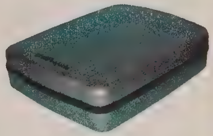
Sturdy steel construction with non-slip rubber feet for added stability. Boom provides 1.00 to 1.65m extension.
C 1607 **$99.50**

## CD CASES



### TDK CD Album 3x12 disc

Three 12-disc folders in a handy filing box. Ideal for DVD, CD, or CDROM discs. 36 disc capacity.
C 9272 **$9.90**



**cdProjects**

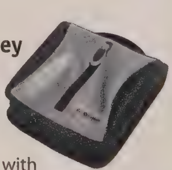
### Steel Case 24CDs

The strongest CD storage case returns with a fresh look, and lighter materials. The steel casing withstands the rigours of car interiors and bedroom floors. Patented BubbleSleeves reduce disc surface contact by 50%.
C 9260 **$39.90**

**cdProjects**

### Playercase 24CDs

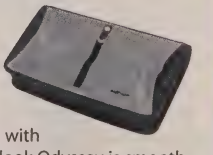
Holds a personal CD player and accessories, plus 24 CDs in protective BubbleSleeves. Smooth and stylish, the Odyssey carries your music into the future with an unsurpassed elegance.
C 9259 **$49.90**



**cdProjects**

### Odyssey Case 32CDs

Holds 32 CDs or 16 with booklets. The new-look Odyssey is smooth to the touch, with futuristic materials and styling. Patented BubbleSleeves reduce disc surface contact by 50%.
C 9269 **$29.90**



**cdProjects**

### Odyssey Case 64CDs

Holds 64 CDs or 32 with booklets. The new-look Odyssey is smooth to the touch, with futuristic materials and styling. Patented BubbleSleeves reduce disc surface contact by 50%.
C 9270 **$49.90**

## VIDEO

**discwasher**

### VHS Head Cleaner

Keep your video heads clean and you will prolong the life of your VCR, as well as preserving your valuable recordings. This wet-head system is fast and easy to use, providing excellent results.

C 7144 **$17⁵⁰**

**PHILIPS**

### VHS Head Cleaner VC200

PHILIPS
VHS
VHS
Wet Video Cleaning Kit
PHILIPS

Picture quality and VCR reliability are both enhanced by regular maintenance. With this kit you can safely and easily keep your VCR heads clean. The cleaning cassette plays just like a normal tape.

C 7100 **$19⁹⁰**

SONY
8mm
Head Cleaner
Nettoyage de 8mm-Video
CLEANING

**SONY**

### 8mm Head Cleaner V825CLH

Keep your video camera in top notch condition. Regular head cleaning removes dirt and restores picture clarity. Suitable for all 8mm, Hi8, and D8 cameras.

C 9252 **$39⁹⁰**

new for 2002

SONY
MiniDV
Digital Video
CLEANING CASSETTE
14m
DVM12CL

**SONY**

### Mini DV Cleaning Cassette DVM12CL

Don't compromise the recording quality of your DV camera! Regular cleaning enhances picture quality, and prolongs equipment life.

C 3126 **$69⁹⁰**

## DIGITAL

**discwasher**

### CD/DVD Laser Lens Cleaner

6 brush system

Keep your valuable equipment operating at peak performance. The 6-brush cleaner is compatible with all DVD, CD, CDR, CDRW, CDROM, and PSX systems. On-disc voice instructions guide you through the cleaning process, plus a stereo speaker setup guide provides for maximized stereo effect.

C 7142 **$22⁵⁰**

**PHILIPS**

### CD Lens Cleaner AC300

PHILIPS
Cleans & Protects

The safe and effective way to remove dust and debris from a CD player's laser optics.

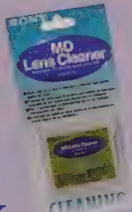
C 7116 **$29⁹⁰**

**discwasher**

### CD Scratch Repair Kit

Save money by repairing your own damaged CDs. This kit fixes most minor scratches and is good for over 50 uses.

C 7147 **$37⁵⁰**


MD Lens Cleaner

**SONY**

### MiniDisc Laser Lens Cleaner

Maintain the purity of your digital recordings with regular player maintenance. This laser lens cleaner is safe, effective, and suitable for all MD equipment.

C 7159 **$19⁹⁰**

## AUDIO

**PHILIPS**

### Audio Tape Head Cleaner AC100

A 'drop-in' cassette that effectively cleans tape heads. It's the easy way to restore sound quality to your home and portable stereos.

C7098 **$9⁹⁰**

tape
path cleaner & demagnetizer

**discwasher**

### Tape Path Cleaner and Demagnetiser

The wet cleaning system is safe for all cassette decks, and the demagnetizer restores the full frequency range of your favourite recordings. You'll be amazed at the difference it makes!

C 7143 **$12⁵⁰**

SONY
CLEANING

**SONY**

### Microcassette Tape Head Cleaner CM1KA

Maintain the performance and sound quality of your microcassette equipment with this easy-to-use head cleaner.

C 7096 **$9⁹⁰**

**DSE**

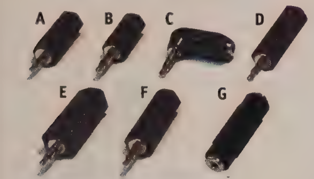
### AV Cleaning Fluid - Isopropyl Alcohol 25ml

DICK SMITH ELECTRONICS
Audio/Video Cleaning fluid
CONTENT 99% ISOPROPYL ALCOHOL
CAPACITY 25ml

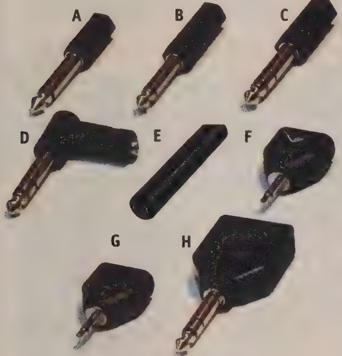
The technician's choice. 99% pure Isopropyl Alcohol in a handy 25ml dropper bottle. Suitable for manual use, and all wet-type cleaning systems.

C 7511 **$7⁵⁰**

## Audio Adaptors – Phono

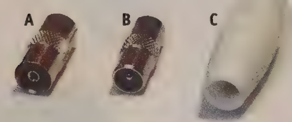


| | | | |
|---|---|---|---|
| A | 2.5mm Mono Plug – 3.5mm Stereo Socket | P 6515 | $4.95 |
| B | 3.5mm Mono Plug – 3.5mm Stereo Socket | P 6600 | $4.95 |
| C | 3.5mm Stereo Plug – 3.5mm Stereo Socket Right Angle | P 6620 | $6.95 |
| D | 3.5mm Mono Plug – 6.5mm Mono Socket | P 6510 | $4.95 |
| E | 3.5mm Mono Plug – 6.5mm Stereo Socket | P 6570 | $4.95 |
| F | 3.5mm Stereo Plug – 6.5mm Stereo Socket | P 6505 | $4.95 |
| G | 3.5mm Stereo Socket – 3.5mm Stereo Socket | P 6602 | $3.95 |



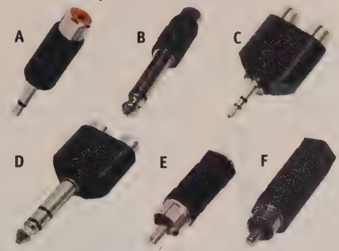
| | | | |
|---|---|---|---|
| A | 6.5mm Mono Plug – 3.5mm Mono Socket | P 6520 | $4.95 |
| B | 6.5mm Mono Plug – 3.5mm Stereo Socket | P 6502 | $4.95 |
| C | 6.5mm Stereo Plug – 3.5mm Stereo Socket | P 6500 | $4.95 |
| D | 6.5mm Stereo Plug R/A – 3.5mm Stereo Socket | P 6625 | $6.95 |
| E | 6.5mm Stereo Socket – 6.5mm Stereo Socket | P 6587 | $3.95 |
| F | 3.5mm Mono Plug – 2x3.5mm Stereo Socket | P 6527 | $4.95 |
| G | 3.5mm Stereo Plug – 2x3.5mm Stereo Socket | P 6525 | $6.95 |
| H | 6.5mm Stereo Plug – 2x6.5mm Stereo Socket | P 6581 | $9.95 |

## Coax In-Line Joiners



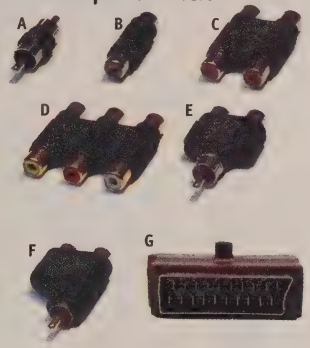
| | | | |
|---|---|---|---|
| A | Adaptor Female – Female | P 2070 | $3.20 |
| B | Adaptor Male – Male | P 2072 | $3.20 |
| C | Cable Joiner Solderless | P 2075 | $3.20 |

## Audio Adaptors – Phono to RCA



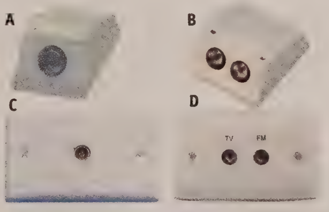
| | | | |
|---|---|---|---|
| A | 3.5mm Mono Plug – RCA Skt | P 6560 | $4.95 |
| B | 6.5mm Mono Plug – RCA Skt | P 6530 | $4.95 |
| C | 3.5mm St Plug – 2 x RCA Skt | P 6572 | $4.95 |
| D | 6.5mm St Plug – 2 x RCA Skt | P 6585 | $4.95 |
| E | RCA Plug – 3.5mm Mono Skt | P 6540 | $4.95 |
| F | RCA Plug – 6.5mm Mono Skt | P 6550 | $4.95 |

## Audio Adaptors – RCA



| | | | |
|---|---|---|---|
| A | 1 x RCA Plug – 1 x RCA Plug | P 6614 | $4.95 |
| B | 1 x RCA Socket – 1 x RCA Socket | P 6565 | $4.95 |
| C | 2 x RCA Socket – 2 x RCA Socket | P 6567 | $9.95 |
| D | 3 x RCA Socket – 3 x RCA Socket | P 6568 | $12.95 |
| E | 1 x RCA Plug – 2 x RCA Sockets | P 6610 | $6.95 |
| F | 1 x RCA Plug – 2 x RCA Socket Gold | P 6612 | $9.95 |
| G | 1 x Scart – 3 x RCA & 1 x SVHS Skt | P 6670 | $17.60 |

## Wall Sockets – 75 Ohm

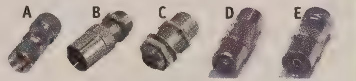


| | | | |
|---|---|---|---|
| A | Surface Mount Skirting Coax Socket | P 2044 | $5.95 |
| B | 75 Ohm Dual TV Outlet Socket | P 2045 | $7.95 |
| C | Wall Plate with Coax Socket/Splitter | P 2042 | $6.45 |
| D | Wall Plate TV & FM Coax Outlet | P 2043 | $8.95 |

## Wall Plates & Inserts

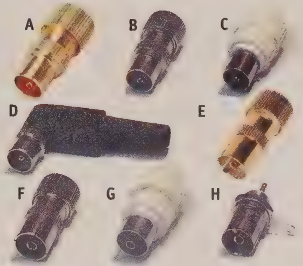
| | | | |
|---|---|---|---|
| A | Architrave Plate | P 2051 | $3.95 |
| B | Standard Size Plate | P 2053 | $4.95 |
| C | 75 Ohm Insert for P 2051/P 2053 | P 2054 | $3.75 |
| D | Skt 300 Ohm Insert for P 2051/P 2053 | P 2056 | $3.90 |

## F Type Connectors



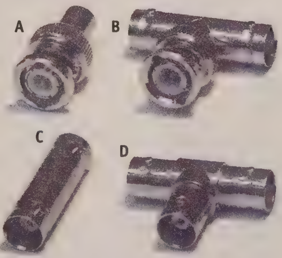
| | | | |
|---|---|---|---|
| A | Socket F type line Screw | P 2090 | $3.45 |
| B | Socket F type panel to Coax Socket | P 2038 | $3.45 |
| C | Socket F type panel to F type socket | P 2039 | $3.45 |
| D | Plug Coax to F Type Socket | P 2036 | $3.50 |
| E | Socket Coax to F type Plug | P 2037 | $4.20 |

## 75 Ohm Connectors



| | | | |
|---|---|---|---|
| A | Plug 75 Ohm Gold Solderless | P 2018 | $4.20 |
| B | Plug Line Metal Solderless | P 2020 | $2.75 |
| C | Plug Line Plastic Solderless | P 2021 | $2.25 |
| D | Plug R/Angle Solderless | P 2024 | $2.80 |
| E | Socket 75 Ohm Gold Solderless | P 2028 | $4.20 |
| F | Socket Line Metal Solderless | P 2030 | $2.75 |
| G | Socket Line Plastic Solderless | P 2031 | $2.25 |
| H | Socket Panel, Hole Mount | P 2046 | $2.25 |

## BNC Adaptors



| | | | |
|---|---|---|---|
| A | 50 Ohm Male Terminator | P 2280 | $5.95 |
| B | Adaptor 'T' Male – 2 x Female | P 2277 | $5.95 |
| C | Adaptor 'I' Female – Female | P 2265 | $5.95 |
| D | Adaptor 'T' Female – 2 x Female | P 2275 | $5.95 |

# *Standard Audio & Video Cables*

## READY MADE CABLES

*Make the right connection with a cable from our standard audio and video range. See also overleaf for our high performance Harmony range.*

## AUDIO CABLES

### 1 x RCA - 1 x RCA

| | | |
|---|---|---|
| RCA Plug - RCA Plug 4 x 1m | C 1069 | **$20.90** |
| RCA Plug - RCA Plug 2m | C 1070 | **$15.90** |
| RCA Plug - RCA Plug 5m | C 1071 | **$17.90** |
| RCA Plug - RCA Plug 10m | C 1074 | **$19.90** |
| RCA Plug - RCA Socket 2m | C 1280 | **$15.90** |
| RCA Plug - RCA Socket 5m | C 1072 | **$17.90** |

### 2 x RCA - 2 x RCA

| | | |
|---|---|---|
| 2xRCA Plugs - 2xRCA Plugs 340mm | C 1185 | **$14.90** |
| 2xRCA Plugs - 2xRCA Plugs 2m | C 1180 | **$16.90** |
| 2xRCA Plugs - 2xRCA Plugs 5m | C 1181 | **$18.90** |
| 2xRCA Plugs - 2xRCA Plugs 10m | C 1186 | **$20.90** |
| 2xRCA Plugs - 2xRCA Sockets 2m | C 1182 | **$16.90** |
| 2xRCA Plugs - 2xRCA Sockets 5m | C 1187 | **$18.90** |
| 2xRCA Plugs - 2xRCA Sockets 10m | C 1172 | **$20.90** |
| 2xRCA Plugs - 2xRCA Plugs with Piggy Back Sockets 2m | C 1245 | **$20.90** |

### 2 x RCA - 1 x RCA (Y-adaptors/cables)

| | | |
|---|---|---|
| 2xRCA Sockets - RCA Plug 250mm | C 1242 | **$14.90** |
| 2xRCA Sockets - RCA Plug 1m | C 1243 | **$15.90** |
| 2xRCA Plugs - RCA Plug 2m | C 1190 | **$16.90** |
| 2xRCA Plugs - RCA Plug 5m | C 1170 | **$18.90** |

### 4 x RCA - 4 x RCA

| | | |
|---|---|---|
| 4xRCA Plugs - 4xRCA Plugs 2m | C 1061 | **$17.90** |

### 3.5mm - RCA

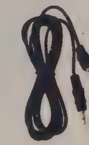
| | | |
|---|---|---|
| 3.5mm Mono Plug - RCA Plug 2m | C 1080 | **$15.90** |
| 3.5mm Mono Plug - 2xRCA Plug 2m | C 1250 | **$16.90** |
| 3.5mm Stereo Plug - 2xRCA Plugs 2m | C 1240 | **$16.90** |
| 3.5mm Mono Plug - 2xRCA Sockets 250mm | C 1252 | **$14.90** |

### 6.5mm - RCA

| | | |
|---|---|---|
| 6.5mm Stereo Plug - 2xRCA Sockets 250mm | C 1095 | **$14.90** |
| 6.5mm Mono Plug - RCA Plug 2m | C 1107 | **$15.90** |
| 6.5mm Stereo Plug - 2xRCA Plugs 2m | C 1101 | **$16.90** |

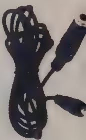
### 3.5mm - 3.5mm

| | | |
|---|---|---|
| 3.5mm Stereo Plug - 2x3.5mm Stereo Socket 1m | C 1161 | **$15.90** |
| 3.5mm Mono Plug - 3.5mm Mono Plug 2m | C 1090 | **$15.90** |
| 3.5mm Mono Plug - 3.5mm Mono Socket 2m | C 1150 | **$15.90** |
| 3.5mm Stereo Plug -3.5mm Stereo Plug 2m | C 1158 | **$15.90** |
| 3.5mm Stereo Plug - 3.5mm Stereo Socket 2m | C 1159 | **$15.90** |
| 3.5mm Stereo Plug - 3.5mm Stereo Socket 5m | C 1165 | **$20.90** |



### 6.5mm - 6.5mm

| | | |
|---|---|---|
| 6.5mm Stereo Plug - 6.5mm Stereo Socket Coil Lead 4m | C 1119 | **$17.90** |
| 6.5mm Stereo Plug - 6.5mm Stereo Socket 5m | C 1166 | **$20.90** |
| 6.5mm Mono Plug - 6.5mm Mono Right Angle Plug Coil Lead 4m | C 1109 | **$16.90** |
| 6.5mm Mono Plug - 6.5mm Mono Plug 2m | C 1121 | **$15.90** |



### MICROPHONE

| | | |
|---|---|---|
| 6.5mm Plug – XLR 6m | C 1275 | **$29.90** |
| XLR – XLR Balanced 6m | C 1277 | **$35.90** |

### DIN

| | | |
|---|---|---|
| 5 Pin DIN - 5 Pin DIN Plug 2m | C 1011 | **$16.90** |
| 5 Pin DIN - 2 RCA Plugs 2m | C 1021 | **$16.90** |
| 5 Pin DIN - 4 RCA Plugs 2m | C 1040 | **$9.00** |

## VIDEO CABLES

### 3 x RCA - 3 x RCA (1 x video + 2 x audio)

| | | |
|---|---|---|
| Video 3xRCA - 3xRCA Plug- 2m | C 1289 | **$22.90** |
| Video 3xRCA - 3xRCA Plug- 5m | C 1423 | **$25.90** |

### 1 x RCA - 1 x RCA (75 ohm)

| | | |
|---|---|---|
| Video RCA Plug - RCA Plug 2m | C 1288 | **$16.90** |
| Video RCA Plug - RCA Plug 5m | C 1421 | **$18.90** |
| Video RCA Plug - RCA Plug 10m | C 1422 | **$20.90** |

### SCART

| | | |
|---|---|---|
| SCART - SCART Plug 1.5m | C 1210 | **$35.90** |
| SCART - 6xRCA with 2xBNC Adaptors | C 1235 | **$38.90** |
| SCART - S-Video + 2xRCA plugs | C 1236 | **$25.90** |

### S-Video (Component Video)

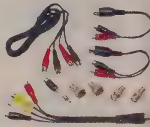
| | | |
|---|---|---|
| S-Video Plug - 2xRCA Plugs 1.5m | C 1233 | **$18.90** |
| S-Video Plug - S-Video Plug 1.5m | C 1234 | **$19.90** |
| S-Video Plug - S-Video Plug10m **NEW** | C 1239 | **$29.90** |

### BNC

| | | |
|---|---|---|
| BNC Plug - RCA Plug 1.5m | C 1290 | **$18.90** |
| BNC Plug - BNC Plug 2m | C 1285 | **$20.90** |

### DSE Video Cable Adaptor Set

A basic 2m RCA lead plus adaptors for 6.5mm phono, BNC, DIN, and UHF (PL259). Makes the connection between virtually every type of video equipment. C 1287 **$39.90**



### TV (Coaxial)

| | | |
|---|---|---|
| TV Plug - TV Plug 2m | C 1400 | **$14.90** |
| TV Plug - TV Plug 4m | C 1401 | **$17.90** |
| TV Plug - TV Plug 10m | C 1420 | **$20.90** |
| TV Plug - TV Socket 2m | C 1405 | **$14.90** |
| TV Plug - TV Socket 4m | C 1406 | **$17.90** |
| TV Plug - RCA Plug 2m | C 1286 | **$16.90** |

### Black 3m Split Conduit Tube, with Cable Ties

Add the finishing touch to exposed cable installations with this handy conduit. The 3m split tube includes 6 re-useable cable ties. Ideal for computers and AV systems. C 0011 **$19.50**

## HARMONY CABLES

Don't waste the money you've invested in high-quality audio, video and home theatre equipment by using inferior cables!

Harmony and Harmony Gold cables provide superior fitting connections, insulation, and shielding - for perfect signal transfer with minimal interference.

**Harmony**
- OFC cable
- Teflon insulation
- 24k gold connectors
- Double crimped
- Split barrel jacks

**Harmony Gold**
- Ultra high quality OFC cable
- Teflon internal dielectric
- 24k gold connectors
- Double crimped
- "C" cut barrel jacks

## AUDIO

### HARMONY

| | | |
|---|---|---|
| **1 x RCA - 1 x RCA** | | |
| RCA Plug - RCA Plug 2m | C 1900 | $19 |
| **2 x RCA - 1 x RCA (Y-Cable)** | | |
| 2 x RCA Plugs - 1 x RCA Plug 2m | C 1901 | $29.90 |
| 2 x RCA Plugs - 1 x RCA Plug 5m | C 1902 | $19 |
| **2 x RCA - 2 x RCA** | | |
| 2 x RCA Plugs - 2 x RCA Plugs 2m | C 1904 | $29.90 |
| 2 x RCA Plugs - 2 x RCA Plugs 5m | C 1905 | $34.90 |
| 2 x RCA Plugs - 2 x RCA Plugs 10m | C 1906 | $39.90 |
| 2 x RCA Plugs - 2 x RCA Sockets 5m | C 1908 | $19 |
| **3.5mm - 2 x RCA** | | |
| 3.5mm Stereo Plug - 2 x RCA Plugs 2m | C 1907 | $34.90 |

### HARMONY GOLD

| | | |
|---|---|---|
| **1 x RCA - 1 x RCA** | | |
| RCA Plug - RCA Plug 2m | C 1920 | $29.90 |
| **2 x RCA - 1 x RCA (Y-Cable)** | | |
| 2 x RCA Plugs - 1 x RCA Plug 5m | C 1922 | $29 |
| **2 x RCA - 2 x RCA** | | |
| 2 x RCA Plugs - 2 x RCA Plugs 2m | C 1924 | $34.90 |
| 2 x RCA Plugs - 2 x RCA Plugs 5m | C 1925 | $39.90 |
| 2 x RCA Plugs - 2 x RCA Sockets 5m | C 1928 | $29 |

## VIDEO

### HARMONY

| | | |
|---|---|---|
| **TV (Coaxial)** | | |
| TV Plug - TV Socket 2m | C 1940 | $19 |
| **S-Video (Component Video)** | | |
| S-Video Plug - S-Video Plug 2m | C 1950 | $29.90 |
| **1 x RCA - 1 x RCA (75 Ohm)** | | |
| Video RCA Plug - RCA Plug 2m | C 1945 | $29.90 |
| Video RCA Plug - RCA Plug 10m | C 1947 | $39.90 |

### HARMONY GOLD

| | | |
|---|---|---|
| **TV (Coaxial)** | | |
| TV Plug - TV Socket 2m | C 1960 | $29.90 |
| **S-Video (Component Video)** | | |
| 4 Pin S-Video - 4 Pin S-Video 2m | C 1970 | $34.90 |
| **1 x RCA - 1 x RCA (75 Ohm)** | | |
| Video RCA Plug - RCA Plug 2m | C 1965 | $34.90 |
| Video RCA Plug - RCA Plug 5m | C 1966 | $39.90 |

## AUDIO/VIDEO

### HARMONY

| | | |
|---|---|---|
| **3 x RCA - 3 x RCA (1 x 75ohm Video + 2 x Audio)** | | |
| 3 x RCA Plugs - 3 x RCA Plugs 2m | C 1948 | $39.90 |
| 3 x RCA Plugs - 3 x RCA Plugs 5m | C 1949 | $44.90 |

### HARMONY GOLD

| | | |
|---|---|---|
| **3 x RCA - 3 x RCA (1 x 75ohm Video + 2 x Audio)** | | |
| 3 x RCA Plugs - 3 x RCA Plugs 2m | C 1968 | $44.90 |

## OPTICAL CABLE

**Harmony 5mm Optical Cable**
Toslink-Toslink. 5mm x 1m
C 0061
$49.90

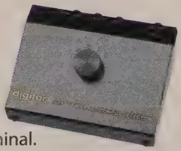
**Harmony 5mm Optical Cable**
Toslink-3.5mm plug. 5mm x 1m
C 0062
$49.90

**Harmony 5mm Optical Cable**
3.5mm-3.5mm plugs. 5mm x 1m
C 0063
$49.90

## SWITCH BOXES

digitor

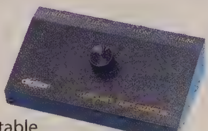
**4-way Audio Switch Box**



One master terminal to 4 selectable terminals. 2xRCA sockets per terminal. Switches between multiple input sources or output destinations.
C 2505
$49.50

digitor

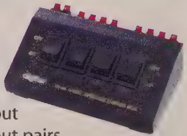
**3-way Audio/Video Switch Box**



One master terminal to 3 selectable terminals. 3xRCA sockets per terminal. Switches between multiple input sources or output destinations.
C 2504
$59.50

digitor

**4-way Speaker Switch Box**



One master input pair and 4 output pairs. Activate any combination of up to 4 sets of speakers from one source.
C 2507
$69.50

# Audio Recording Media

## AUDIO CDR

**imation Audio CDR 80min 5-Pack**
CD-DA recordable.
C 3999 $14.90

**TDK Audio CDR 80min 5-Pack**
CD-DA recordable.
C 3958 $19.90

**TDK Audio CDR 74min**
CD-DA recordable.
C 4057 $3.90

**TDK Audio CDR 80min**
CD-DA recordable.
C 4084 $4.50

**TDK Audio CDRW 74min CDRWXA74**
CD-DA rewriteable.
C 4083 $5.90

**PHILIPS Audio CDR 74min**
CD-DA recordable.
C 4095 $5.90

**PHILIPS Audio CDR 80min**
CD-DA rewriteable.
C 4096 $7.90

**PHILIPS Audio CDRW 74min**
CD-DA rewriteable.
C 4097 $19.90

## MINI DISC

**SONY MiniDisc 74min Sapphire Blue**
Single disc in plastic case.
C 9243 $7.90

**SONY MiniDisc 74min Ruby Red**
Single disc in plastic case.
C 9244 $7.90

**SONY Prism Series MiniDisc 80min**
Shock absorbing mechanism.
C 9253 $12.90

**SONY Prism Series MiniDisc 74min 3-Pack**
Three discs in storage sleeves.
C 4063 $22.90

**SONY Prism Series MiniDisc 74min 5-Pack**
Five discs in a storage case.
C 4064 $37.90

**TDK MiniDisc Rainbow Pack**
Four discs with a folding storage rack.
C 9262 $29.90

## SINGLE AUDIO TAPES

**SONY Audio Tape C10 CDX**
Five minutes per side. Ideal for telephone answering machines or short messages.
C 3104 $2.90

**SONY Audio Tape EF60**
General purpose music recording. Reliable and durable with high quality reproduction.
C 3119 $1.90

**SONY Audio Tape EF90**
General purpose music recording. Reliable and durable with high quality reproduction.
C 3121 $2.90

**SONY Audio Tape HF120**
High performance, superb sound. Excellent music and voice reproduction.
C 3101 $5.90

**TDK Audio Tape D120**
The normal position cassette that delivers great sound. High precision cassette mechanism.
C 9251 $6.90

**SONY Chrome Audio Tape UX90**
Perfect for CD recording. Superior sound reproduction.
C 3115 $5.90

**TDK High Position Audio Tape SA90**
Captures the exciting clarity of digital sound. Extremely low noise characteristics.
C 4007 $7.90

**TDK Metal Audio Tape MA90**
Wide dynamic range over the entire frequency spectrum. For discerning listeners who demand the very best.
C 4008 $9.90

**SONY Microcassette Tape MC60**
For telephone answering machines and microcassette notetakers. Reliable, durable performance.
C 3369 $6.90

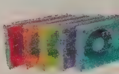
## AUDIO TAPE PACKS

**SONY Audio Tape EF60 3-Pack**
General purpose music recording. Reliable and durable with high quality reproduction.
C 3103 $4.90

**SONY Audio Tape EF90 3-Pack**
General purpose music recording. Reliable and durable with high quality reproduction.
C 3113 $6.90

**SONY Audio Tape EF90 5-Pack**
General purpose music recording. Reliable and durable, with high quality reproduction.
C 9242 $9.90

**TEAC Audio Tape MDX100 5-Pac**
Five 100-minute audio tapes in cool translucent colours.
C 9108 $12.90



**TDK Audio Tape B60 10-Pack**
Low noise and precision performance at a budget price.
C 4104 $15.90

**TDK Audio Tape B90 10-Pack**
Low noise and precision performance at a budget price.
C 4109 $19.90

**digitor Microcassette Tape MC30 3-Pack**
Suitable for all microcassette recorders.
C 3371 $9.90

**SONY Microcassette Tape MC60 3-Pack**
For telephone answering machines and microcassette notetakers.
C 3365 $13.90

**TDK Microcassette Tape MC60 3-Pack**
Unsurpassed reliability from specially toughened tape.
C 3364 $14.90

**TDK Microcassette Tape MC90 3-Pack**
Up to 3 hours per tape on dual-speed recorders! (90 minutes standard).
C 4091 $19.90

## 8MM

**TDK 8mm Camera Tape HS90**

Ideal 'all round' 8mm tape with beautiful colour and authentic sound. 90 mins.
C 4014 $15.90

**TDK 8mm Camera Tape HS90 2-Pack**

Ideal 'all round' 8mm tape with beautiful colour and authentic sound. 90min per tape.
C 4055 $24.90

**SONY 8mm Camera Tape MP90**

General purpose 8mm tape. High quality and durability. 90 mins.
C 3280 $16.90

**SONY 8mm Camera Tape MP120**

General purpose 8mm tape. High quality and durability. 120 mins.
C 3281 $21.90

## HI8

**SONY Hi8 Camera Tape HMP60**

60min Hi8 recording or 40min D8 recording. Excellent high resolution images, with vivid colour and sound.
C 3294 $19.90

**SONY Hi8 Camera Tape HMP90**

90min Hi8 recording or 60min D8 recording. Excellent high resolution images, with vivid colour and sound.
C 3283 $24.90

## DIGITAL 8

**SONY Digital 8 Camera Tape N860P**

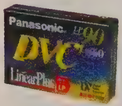
60min SP or 90min LP recording for all D8 cameras. True-to-life picture and soundtrack.
C 3288 $24.90

**SONY Digital 8 Camera Tape N890P**

90min SP or 135min LP recording for all D8 cameras. True-to-life picture and soundtrack
C 3293 $39.90

## MINI DV

**Panasonic Mini DV Tape 60min**



Suitable for all MiniDV video cameras.
C 9265 $24.90

**Panasonic Mini DV Tape 80min**

Our longest MiniDV tape.
C 9266 $29.90

**SONY Mini DV Tape 3-Colour Pack**

Three 60min tapes in assorted colours.
C 3291 $59.90

**SONY Mini DV Tape DVM60 Premium**

60min SP or 90min LP recording.
C9256 $29.90

**SONY Mini DV Tape 60min 5-Pack**

Ideal for travellers and studios.
C 3123 $89.90

**SONY Mini DV Tape DVM60 Excellence**

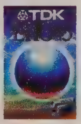
True-to-life reproduction.
C 4065 $35.90

**SONY IC Mini DV Tape DVM60 Excellence**

Sony's finest, with memory chip for recording data.
C4066 $47.90

## VHS-C

**TDK VHS-C Camera Tape EHG45**



Extra high grade. 45 min.
C 3702 $15.90

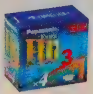
**TDK VHS-C Camera Tape EHG45 2-Pack**

Extra high grade. 45min per tape
C 3714 $24.90

**Panasonic VHS-C Camera Tape 60min**

A full hour of recording!
C 9264 $19.90

**Panasonic VHS-C Camera Tape 45min 4-Pack**



Great value for families and travellers.
C 9263 $39.90

## VHS

**SONY VHS Tape E180 DX**

Durable and excellent quality, with anti-fungus treatment for storage.
C 3221 $5.90

**SONY VHS Tape E240 DX**

Durable and excellent quality, with anti-fungus treatment for storage.
C 3226 $8.90

**SONY VHS Tape E30 Premium**

Naturally beautiful colour and powerful sound.
C 9248 $6.90

**SONY VHS Tape E60 Premium**

Naturally beautiful colour and powerful sound.
C 3216 $7.90

**SONY VHS Tape E120 Premium**

Naturally beautiful colour and powerful sound.
C 3215 $8.90

**SONY VHS Tape E180 Excellence**

High grade tape made in Japan. For HiFi recording.
C3227 $11.90

**TDK VHS Tape E180 SC 3-Pack**

Sharp and clear images. Stands up to repeated everyday use.
C 4052 $12.90

**TDK VHS Tape E180 EHG**

Extra high grade, designed for HiFi VCRs. Superb colour and detail
C 4012 $9.90

**TDK VHS Tape E240 EHG**

Extra high grade, designed for HiFi VCRs. Superb colour and detail.
C 9249 $12.90

**TDK VHS Tape E300 HS**

Ideal for extended time-lapse recording. Specially designed base film withstands the rigours of regular use.
C 3950 $15.90

**CASIO**

### Portable LCD TV TV970

2.3" LCD portable TV with automatic tuning make the TV 970 a user friendly unit. Features TiSTN (Top ITO twisted nematic system) technology.
G 7301 $249

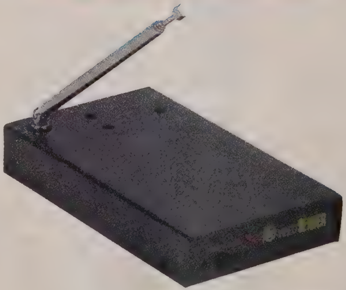
### 5" Portable TV/Radio

5" portable black & white TV with AM/FM radio, easy carry, dome tube cover, AC/DC & battery operated video input, ear jack, with a hard blue and white case.
G 7103 $99.95

### digitor 4" Handheld LCD TV

Get the latest in LCD TV technology with this terrific portable TV. Features include: Super sharp & extra bright picture, A/V input, Auto search tuning, earphone jack. Battery or DC powered (AC power and car adaptors supplied).
G 7240 $476

### Video Sender



Your own mini transmitter! No need for video cables. Compatible with VCR and UHF TV sets. Comes complete with power supply and accessories. 'Send' your video to any TV in the house! Watch what you want - and keep the children happy!
G 5561 $109

**digitor**

### 51cm Colour Television

This stylish TV comes with on screen display, dual speakers, sleep timer, AV input, auto tuning and remote control.
G 5128 $439

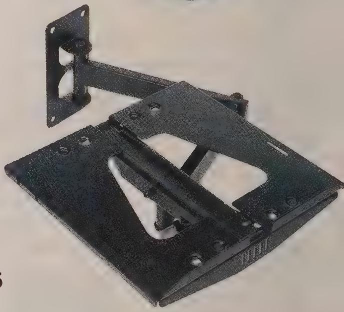
**EVEREADY.**

### 5.5" Portable TV/Lantern/Torch

5.5" Portable Black & White TV with AM/ FM Radio, complete with torch, lantern & Siren. Multi Function unit ideal for the beach, boat, caravan etc. With features that will blow your mind.
G 7248 $139.95

**digitor**

### TV/Monitor Wall Bracket 14"-18"



Easy to assemble and it's expandable! Great for the home or office. Adjustable to hold 35-45cm (14"-18") TV/monitor up to 30kg.
G 1500 $79.95

### Remote Control Extender

Operates remote controlled equipment such as TV, VCR, Satellite, Hi-Fi etc. from anywhere in the home. No longer do you have to be in a direct line of sight with your equipment to control them. Please note: Device does not replace your cable connection.
G 8678 $149.95

*Dick Smith Electronics is the place to go for AC/DC products that you can take anywhere. Take it in the car, the caravan or the boat. Will run on mains power or from your cigarette lighter.*

### 10" AC/DC Colour TV

Great for use in the boat or caravan, this 10" colour CRT TV features AC/DC operation, on screen display, sleep timer, 30 programme memories, A/V input and infrared remote control.
G 7230

**$569**

digitor

### Digitor AC/DC Video Player

Small portable video player. Runs on AC or DC power - ideal for the batch or caravan. Even has an auto repeat playback which allows you to play the same video over and over again. Comes with remote. DC adaptor included for connection to cigarette lighter.
G 0230

**$299**

Hills

### Boat/Caravan UHF/VHF TV Antenna

VHF/UHF antenna with built-in amplifier. It has 360° reception so does not have to be pointed in a particular direction. It comes complete with a 12V power supply. It has a weatherproof plastic case and is supplied with mounting bracket. Features: Inbuilt amplifier, UHF-VHF TV antenna ideal for boats or caravans.
L 4078

**$99.95**

## DC VOLTAGE CONVERTERS & INVERTERS

*Of course, you may require a power supply and we stock a comprehensive range!*

### Multi-Voltage Adaptor 800mA

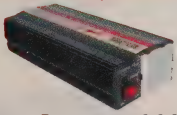
Simply plugs into a car cigarette lighter socket and allows you to switch voltages to run a large range of battery powered devices. Has selectable polarity and is supplied with an assortment of plugs. Output 1.5, 3, 4.5, 6V at 500mA, 7.5, 9, 12V at 800mA.
M 9683

**$29.95**

### Adaptor 1.5-12V DC @1.5A

Simply plugs into the car or boat cigarette lighter and allows you to switch voltage. Has a swivel neck to allow you to change the angle of the device for better convenience. Supplied with multi fit adaptors to suit your needs.
M 9682

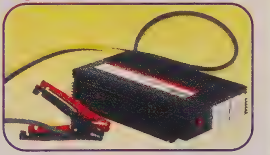
**$39.95**



### Power Inverter 300W

Plug this inverter into the cigarette lighter socket in your car or boat (or any 12V power source) to provide 230V AC power for most electrical equipment. Great for televisions and VCRs, personal computers, kitchen appliances and other 230V devices that you may want to use in remote locations. Features electronic overload and temperature shutdown.
M 5101

**$194**



### Power Inverter 12Volt 650Watt

650W continuous inverter provides 230V nominal output, with up to 1000W surge. Two main plugs, great for televisions, VCRs, kitchen appliances and other 230V devices that you may want to use in remote locations.
M 5102

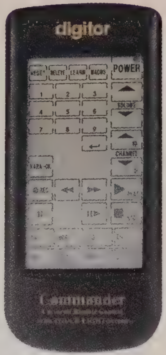
**$447**

**digitor**

### Remote Control Commander

Large LCD touch screen controls up to 8 devices, single function panel can easily be operated. This unit can learn the functions of 8 infra-red remote controls. Customise each screen for individual devices.

G 1210 **$179.95**



**digitor** **'7 in 1'**

### Universal Remote Control

Preprogrammed unit that replaces multiple remotes. Control up to seven different devices.

G 1221 **$47.85**

**ONE FOR ALL** **4 Remote**

Replaces lost or broken remotes and operates all brands of TV, VCR, DVD players and digital satellites. Eliminates the clutter of 4 remotes, regardless of brand.

G 1291 **$89.95**

**ONE FOR ALL** **Zapper 2 Remote**

Replace your lost or broken remotes with this device that allows you to consolidate existing remotes for TV and Sky. Guaranteed solution.

G 8676 **$39.95**

**digitor**

### Universal Remote Control

Programmed and learning. Replace up to 4 remotes with this versatile unit. Preprogrammed and learning capabilities allow you to replace non-standard functions from your original remote. Backlit volume and channel controls plus Teletext keys.

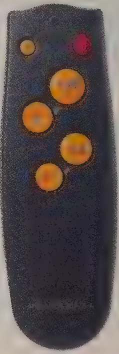
G 1222 **$87**

**PHILIPS**

### Universal Remote

Replace your lost or broken TV remote today. This comfortable and easy to use unit operates all the big brands and contains just the keys you need. The robust design is resistant to drops and spills.

G 0008 **$33**



**ONE FOR ALL** **3 Remote**

Replace your lost or broken remotes! This device allows you to consolidate existing remotes for TV and VCR remove the clutter of remotes on your coffee table. Allows you to control all functions of existing remote for both TV & VCR.

G 8675 **$68.95**

**ONE FOR ALL** **Remote Control**

Easy to use remote replaces most brands. Comes with colour and brightness control.

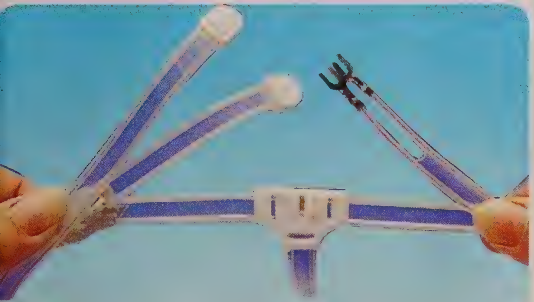
G 1223 **$29.95**

### VHF/UHF/FM Indoor TV Antenna

This design picks up VHF/UHF/FM and is especially good for UHF. It is a modern design which looks good on your TV.
L 4017 $\$27^{95}$

### Amplified Indoor Rabbit Ears Antenna

New indoor VHF/UHF TV antenna with built-in amplifier which has adjustable gain. It has a non scratch, non slip base and a pleasing finish to complement modern televisions.
It comes complete with power adaptor and connecting leads.
L 4016 $\$49^{95}$

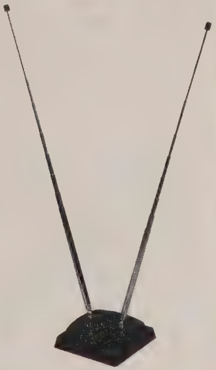


### Indoor FM Radio/TV Antenna

Great as an FM antenna for your tuner or as a VHF TV antenna in prime reception areas. Find the best reception position, and stick it up with tacks or adhesive.
L 4060 $\$10^{95}$

### Plug-In Rabbit Ears Indoor Antenna

Damaged your rabbit ears antenna? Here's the perfect low-cost replacement! Simply plug these ears into your old base. Picks up VHF channels 1-11 in good reception areas.
L 4655 $\$17^{35}$



### Rabbit Ears TV Antenna with Metal Base

Ideal for strong signal areas, this antenna can be quickly connected to your TV and has rubber pads to prevent it from slipping.
L 4673 $\$27^{80}$

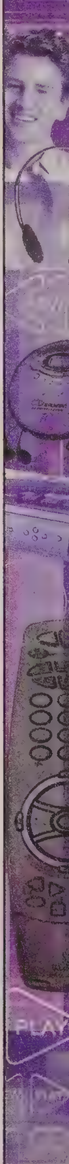
### Deluxe Indoor Rabbit Ears

A quality VHF/FM antenna for good reception areas or where outdoor systems are inappropriate. The antenna rotates 180 degrees for easy adjustment.
L 4011 $\$31^{95}$

IN
ANTSIG
CODE 724
FM TRAP
88-108MHz
OUT

### TV FM Trap 75 ohm

FM trap 75 Ohm. Filter unit for strong FM signal interference which can create "herringbone" pattern on the TV receiver screen.
L 4478 $\$10^{45}$



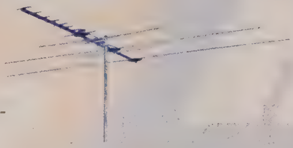
## Outdoor TV Antenna

### Budget Combination UHF/VHF Antenna

Ideal for metropolitan or good reception areas. It has provision for either vertical or horizontal mounting and features corrosion resistant construction for longer, trouble-free life. VHF 2-11/UHF 21-69.

L 4710 **$79**

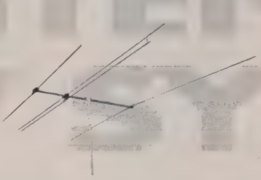
### Combination UHF/VHF Antenna



Ideal for metropolitan or inner fringe reception areas. It has provision for either vertical or horizontal mounting and features corrosion resistant construction for longer, trouble-free life. VHF 2-11/UHF 21-69.

L 4715 **$99**

### 3-Element Lowband Antenna



For picking up VHF channels 1-3. It has high gain over this frequency range. Constructed with corrosive resistant materials for long lasting and can be mounted horizontally or vertically.

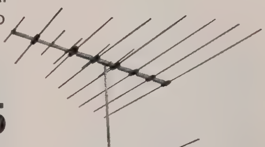
L 4607 **$99**

### 6-Element Highband Antenna

For picking up VHF channels 4-11. Constructed with corrosive resistant materials for long lasting and can be mounted horizontally or vertically. The DY6 comes complete with a high quality 'F' type balun.

L 4603 **$89**

### VHF Suburban Antenna



High-gain 12-element VHF aerial channels 2-11. Used for prime to outer fringe. Snap lock construction with heavy extruded elements and boom.

L 4609 **$155**

### Yagi-style 16 Element UHF TV Antenna

This UHF antenna picks up channels 21-69 and has 2 reflectors for improved receptions. It can be horizontally or vertically mounted and features corrosion resistant construction for longer trouble-free life.

L 4711 **$99**

### 23-Element UHF Antenna

An up-to-date 23-element design, it receives all UHF channels from 21-69. Provision is made so the antenna can be tilted where necessary and it can be easily mounted on any standard mast. Includes balun for coaxial connection.

L 4712 **$99**

### Deluxe UHF Antenna

With 43-elements this antenna is best suited to medium reception areas. It's tuned for reception of channels 21-69 and can be mounted horizontally or vertically. Comes complete with balun for coaxial connection.

L 4713 **$114**

### High Gain UHF Antenna

With 91 elements this antenna is best suited to deep fringe reception areas. It's tuned for reception of channels 21-69 and can be mounted horizontally or vertically. Mounts on standard antenna mast.

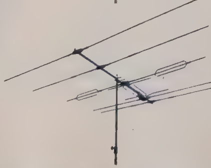
L 4714 **$169**

### VHF Suburban Antenna

7-element VHF aerial channels 1-11. Used from prime to inner fringe. Constructed with corrosive resistant materials for long lasting and can be mounted horizontally or vertically.

L 4716 **$159**

### Anti-ghosting Antenna



7-element channels 2-11. New Zealand's only true anti-ghosting aerial with negative gain on band 1.

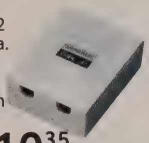
L 4717 **$199**

**For specific advice on your antenna requirements, call the Dick Smith Electronics antenna help line - 0508 ANTENNA**

***Please note that poles shown with antenna are an extra cost.***

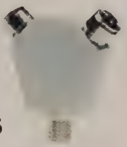
## ANTENNA SPLITTERS

Used when one antenna is connected to multiple TVs, videos, etc (can sometimes be used in reverse). All are designed for indoor use.



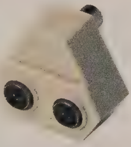
### 2-Way Coax Splitter

75 Ohm splitter permits 2 outlets from one antenna. Covers 50-890MHz. Isolation 25dB. Insertion loss 3.5dB. Can be used in reverse.
L 4472 **$10.35**



### 2-Way Plug Type Splitter

75 Ohm splitter permits 2 outlets. Fitted with standard coaxial plugs and sockets so connection is simple.
L 4270 **$13.95**

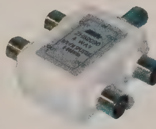


### Right Angle 2 Way Splitter

L 4272 **$13.35**

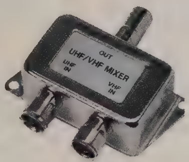
### 4-Way Coax Splitter

75 Ohm splitter permits 4 outlets from one antenna. Can be used in reverse.
L 4474 **$15.95**



### 4-Way Plug Type Splitter

75 ohm splitter permits 4 outlets. Fitted with standard coaxial plugs for simple installation.
L 4664 **$17.45**



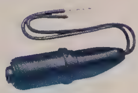
### Indoor VHF/UHF Mixer

Strong metal housing with separate VHF and UHF inputs and a single output.
L 4663 **$18.25**

### UHF/VHF Separator

Provides 2 separate equal outputs from a single antenna input. Used where TV receivers have separate UHF and VHF antenna sockets.
L 4480 **$2.00**

## TV BALUNS

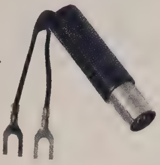


### A. Indoor/ Outdoor Balun

For matching 75 Ohm coaxial cable to 300 Ohm ribbon terminals on your TV, tuner or antenna. It's weather-resistant so can be used indoors or out.
L 4465 **$10.65**

### B. Universal Balun

With 300 Ohm screw terminals and 75 Ohm coaxial plug - can be used either way around. For indoor use, it's ideal if you're not sure which type of balun you require.
L 4456 **$9.30**



### C. Balun Socket

Simply fixes to the 300 Ohm terminals on your TV and converts it to a 75 Ohm coaxial socket. Ideal for TV games on the old black & white set. Indoor use only.
L 4454 **$10.65**

## 'F' CONNECTORS

IN
2-WAY SPLITTER
UHF/VHF/FM
OUT
OUT

### Two- Way 'F' Connector Splitter

Allows the connection of two devices to one antenna. Suits VHF, UHF and FM radio. 75 Ohm.
L 4221 **$9.85**

### Three-Way 'F' Connector Splitter

Connect up to three devices to one antenna including your TV, VCR and FM radio. 75 Ohms
L 4222 **$10.65**

### Four-way 'F' Connector Splitter

Simply attach to cable and you can hook up four devices to one antenna. 75 Ohm.
L 4223 **$11.70**

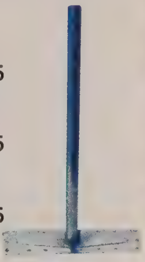
### Connectors

Connects your cable to your antenna and TV/video.
Packet of four.

**F59 Read Packet of 4**
L 4225 **$9.95**

**F56 Read Packet of 4**
L 4226 **$9.95**

## ANTENNA MOUNTS

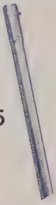


### Masts

Jigger Boom Vertical Stand Off Mast 6mm
L 4637 **$22.85**

Fascia Mount 1.2 metre for Barge
L 4642 **$22.85**

Fascia Mount 2.1 metre for Barge
L 4641 **$28.95**



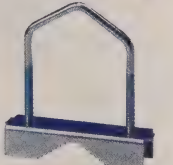
### Extensions

Straight Mast 1 metre extension
L 4631 **$17.95**

### Stays/Brackets

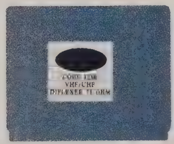
Stay 1.2 metre mast clamp (pair)
L 4635 **$28.8**

Stay 1.8 metre mast clamp (pair)
L 4634 **$31.45**



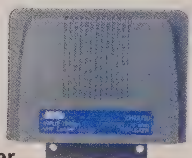
### Clamp

U Bolt and V Block. Set 8mm large.
L 4166 **$8.95**



### Masthead Diplexer

Housed in a weatherproof enclosure for masthead fixing with provision for 300 Ohm or 75 Ohm connections. Can be used indoors or outdoors.
L 4469 **$21.80**



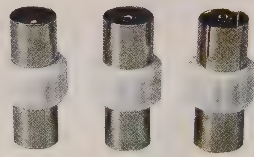
### Triplexer

This quality triplexer has an input for VHF Low, VHF High, UHF. It combines these signals to a single 75 ohm output.
L 2259 **$27.45**

## — AMPLIFIERS, TV EXTENSION LEADS & CONNECTORS

### 2-Way TV/FM Splitter Amplifier

A great low-cost splitter amplifier that's easy to install. Australian made, it features VHF/12dB & UHF 12dB gain and 2-way coaxial outlets.
L 4215 **$99.95**



### TV Coax Joiners

Pack of 3: Male-Male; Female-Female; Male-Female.
L 4452 **$8.35**

### TV Extension Lead with Adaptor Plug

| | | |
|---|---|---|
| 1.5m | L 4269 | **$11.70** |
| 6m | L 4268 | **$20.95** |
| 10m | L 4271 | **$25.65** |

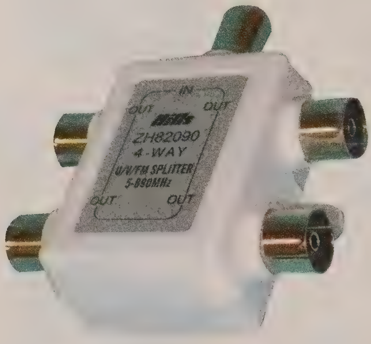
### TV Amplifier With 2-Way Splitter

Ideal for home viewers who want good reception when operating multiple TVs from a single antenna. For in line amplification of VHF/UHF TV channels. Includes power supply.
L 4216 **$109.95**

UHF/VHF TELEVISION AMPLIFIER

### UHF/VHF Masthead TV Amplifier

Designed for VHF/FM/UHF channels. Provides high gain with extremely low noise level & comes with power supply and mast clamp. Variable gain for best results in differing signal strength areas. Maximum gain 35db.
L 4205 **$106.49**



### 4-Way Plug Type 75 ohm Splitter

75 ohm splitter permits 4 outlets from one antenna. Covers 40-862 MHz. Fitted with standard coaxial plugs and sockets for simple installation.
L 4664 **$17.45**

TO TV
Hills
ANT/GAME SWITCH
BC3632
ANT
GAME

### Games/Computer TV Switch

If you play computer/ video games through your TV, avoid the hassle of unplugging the system every time you want to watch. Just a flick of this switch allows you to swap between watching TV and playing games.
L 4501 **$18.45 ea**

### 10m Coax Cable Pack with Balun

L 4466 **$25.50**

Check instore or on the web for latest titles!

Watch great movies and concerts in the comfort of your own home

All with superb digital picture clarity, stunning Dolby Digital or DTS Audio, and all the extra features you don't get to see at the movies!

A KNIGHT'S TALE
HE WILL ROCK YOU
THE FAST AND THE FURIOUS
ROMEO MUST DIE
SHREK
EAGLES
hell freezes over
STAR WARS
PHANTOM MENACE
DVD
VIDEO
TRAVOLTA JACKMAN BERRY
SWORDFISH
MATRIX
ANGELS
A.I.
ARTIFICIAL INTELLIGENCE
Fleetwood Mac
THE DANCE

Audio and extra features may vary depending on title

## PlayStation Games & Accessories

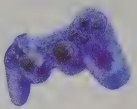
### PS one Console

New smaller incarnation of the best-selling games console from Sony: the same machine in a smaller package. All original Playstation games and accessories will work with the new PS One Console.
Y 9706 **$198**

### PlayStation 2 Console

**(includes 1 hand controller)**

It's compatible with all your original PlayStation games and there's a huge range of 'new generation' games now available. Plus it doubles as a DVD movie and music CD player with state-of-the-art Surround Sound capability.
Y 9558 **$598**

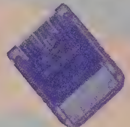


### PS one Dual Shock Controller

Similar design to the standard controller, but with the added thumb control sticks, for analog movement.
Y 9707 **$59.80**

### Namco G-Con45 Light Gun - PlayStation

No other light gun features the signal-scanning plug which sets a new industry standard for accuracy.
Y 9700 **$69.80**

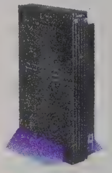


### PS one Memory Card

Use this to save games and statistics from your PlayStation games. (May differ from picture)
Y 9881 **$29.70**

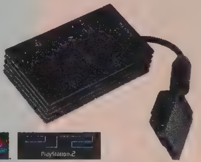
### PS one RFU Adapter

Connects a PSOne or PS2 to an older TV that does not have A/V inputs or an S-Video plug.
Y 9900 **$49.90**



### PlayStation 2 Vertical Stand

Used to mount your PlayStation 2 in a secure vertical position.
PS2 not included.
Y 9897 **$29.80**

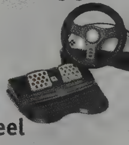


### PlayStation 2 Multi-Tap

Plugs into your existing hand-controller slot, allowing you to connect up to 4 controllers at once. Connect 2 Multi-Taps and play 8 player games!
Y 9895 **$99.80**

### PlayStation 2 8MB Memory Card

Store saved games and characters on this 8MB memory card for a Sony PlayStation 2.
Y 9894 **$89.80**

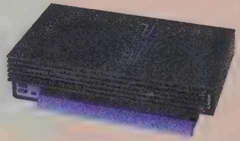


### PS one PlayStation 2 Steering Wheel

One and PS 2 driving game. Has one quick and easy plug connection to get you up and running.
Y 6398 **$149.80**

### PlayStation 2 Dual Shock Controller

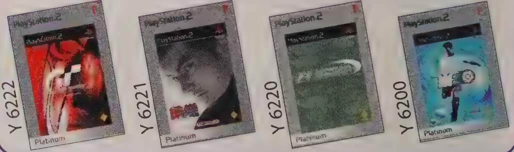
This controller is compatible with all PlayStation 2 and PlayStation One games, and Dual Shock supported games.
Y 9893 **$59.70**



### PlayStation 2 Horizontal Stand

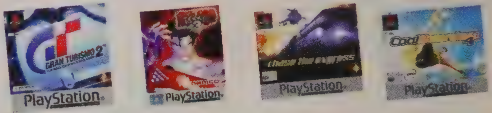
Used to mount your PlayStation 2 in a secure horizontal position.
PS2 not included.
Y 9899 **$29.80**

### PS2 PLATINUM GAMES $59.90



Y 6222 Y 6221 Y 6220 Y 6200

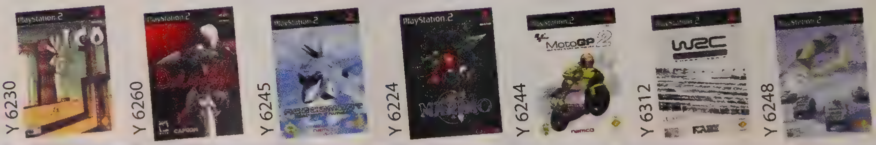
### PSONE PLATINUM GAMES $39.90



Y 9728 Y 9714 Y 6243 Y 6241

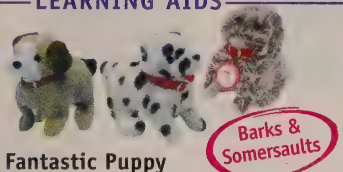
### HOT NEW RELEASES

**Priced from $119.90 - $139.90**



Y 6230 Y 6260 Y 6245 Y 6224 Y 6244 Y 6312 Y 6248

## LEARNING AIDS



### Fantastic Puppy

Now in three versions - Brown, Dalmatian and Shaggy! He moves, barks, somersaults & lands on his feet. Requires 2 x AA batteries (not included).
Y 2522
$16.80 ea

### Animal Sounds Play Mat

Great fun for toddlers! Make animal sounds by crawling, walking or dancing! With 4 animal sounds.
Y 7015
$24.80

### Zip The Robot Learning Aid PC

With 50 activities, Zip is a fun and education tool for your child.
Y 7136
$145

**Zip the Robot Smart Card**
Y 7137
**$24.95**

### Flashlight Kids Fun Light

This kids torch comes in a range of lovable animal style heads. It has a strong beam an easy to hold. Just squeeze the trigger and the mouth opens! Requires 2 x "AA" batteries (not included).
Y 2149
$13.60 ea

### Rubber Band Power Airplane

Wind up the rubber band using the special battery-operated winder and let it go! This easy-to-assemble plane requires no glue or tools. Winder uses 2 x 'AA' batteries (not included).
Y 2994
$14.80

### Kid's Cassette Recorder

Fun kid's cassette recorder. Includes detachable microphone for hours of fun. Comes in blue/purple and red/white.
Y 7027
$39.80

### Radio Control Buggy GrassHopper

27.145MHz, three function - forward, left turn, reverse. Fully assembled, spiked tyres. Uses 4 x "AA" batteries plus 1 x 9V battery (not included). Product may vary from one pictured.
Y 2425
$28.60

### Smart Tone Electronic Keyboard

This keyboard has eight programmable rhythms, four percussion sound pads, four electronic animal sounds, six pre-recorded demo tunes and two-note polyphonic play. Comes with sing-a-long microphone! Requires 4 x "AA" batteries (not included).
Y 6928
$39.80

## *Toys arriving for Christmas*

*available instore from September onwards*

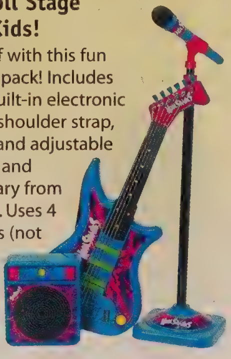
### Hand Held Game

Handheld LCD game with exciting sound effects. Choose from 10 different games.
Y 8349
$12.80

new for
2002

### My First Musical Guitar

Kids musical guitar with playable strings and 8 pre-recorded songs.
Y 7029
$28.70



### Rock 'n' Roll Stage Show for Kids!

Raise the roof with this fun performance pack! Includes guitar with built-in electronic speaker box, shoulder strap, microphone and adjustable stand. Colour and decals may vary from store to store. Uses 4 x "C" batteries (not included).
Y 7006
$69.60

new for
2002

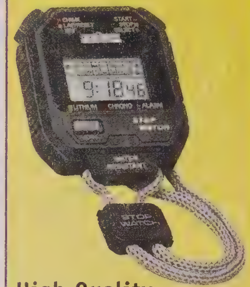
### Kids Keyboard

Electronic Keyboard with sing-a long microphone, stool and stand. 8 Rhythms and programmable orchestrations.
Y 7030
$115

## STOPWATCHES

### DSE Stopwatch

With easy-to-read LCD display, split/lap times, regular watch function and calendar. Comes with handy nylon lanyard.
Y 1051 $18.40



### High Quality Digital Stopwatch

With 24-hour stopwatch function, 1/100 second readout and split/lap time, this rugged stopwatch is water resistant and comes with nylon lanyard.
Y 1050 $31.60

12:52 15
WATER RESISTANT

### DSE 10 Lap Memory Stopwatch

Features 10 lap memory, 24 hour stopwatch function, 1/100 second readout and split/lap time. It is water resistant and comes with nylon lanyard.
Y 1290 $38.70

### Quartz Watch

Quality quartz watch with Japanese movement and a leather strap.
Y 1279 / Y 1285
$6.80-$15.40

12:38
BACKLITE

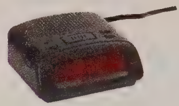
### Large Digital Clock

Has green backlight, calendar, jumbo LCD display, time and calendar readout, strong green LED read. Uses A761 (S 3061) batteries (included).
Y 1205 $12.80

QUARTZ
11:22

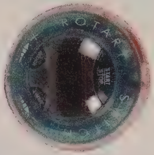
### Quartz Travel Clock

Compact, but with large, easy to read digital display. Use the handy fold-out stand, or mount on the dashboard of your car with the velcro tape supplied. Complete with battery.
Y 1009 $14.80



### Digital LED Alarm Clock

AC-powered digital alarm clock with 9 Volt battery back-up (battery not included). LED display and 9 minute snooze function. Compact slimline design to fit anywhere.
Y 1146 $18.50



### Rotary Clock Timer

Easily set rotary timer clock that counts up or down to 99 minutes in seconds. Has extra loud beep alarm.
Y 1206 $19.80

0:00
ELECTRONIC TIMER CLOCK

### Electronic Timer/Clock with clip

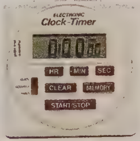
This timer with belt/magnet clip is great for those that need a portable timer. Can be clipped to belt, apron, fridge etc.
Y 1022 $20.60

### World Time Travel Clock

Features 12/24-hour clock mode, 4 minute snooze function, flip out stand, cover lists time difference between featured cities. Uses G13 1.5V button cell battery (S 3293).
Y 1040 $22

### Talking Alarm Clock

Electronic talking alarm clock. Selectable alarm: Electronic voice, cookoo or Rooster. Quartz LCD time display.
Y 1219 $24.40

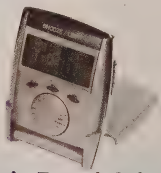


### Compact Timer/Clock

Great for timing cooking, phone calls, medication schedules etc, this compact 24-hour timer counts up and down and includes a full function digital clock.
Y 1023 $25.70

### Snooze Alarm Travel Clock

Large digital LED readout features handy backlight, choice of 12 or 24-hour clock format, and 1-minute loud alarm. Uses 1 x AAA battery.
Y 2240 $26.80



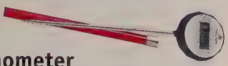
### Electronic Travel Calendar Alarm Clock with EL Backlight

Features a massive 48mm x 20mm LCD display and super-bright backlight.
Y 2241 $28.80

### Digital Wall Clock

Displays time, month, day, date and thermometer. Batteries not included.
Y 2199 $89.80

## THERMOMETERS



### Digital Electronic Stem Thermometer

Laboratory-standard thermometer with moveable head switch and LCD display giving 3-second updates. With a measure-ment range of -50°C to 150°C (-58°F to 302°F) and more than 5000 hours of battery life.

Y 5031 **$28.80**

### Dual Aquarium Thermometer

Provide your tropical fish with an optimum environment. This aquarium thermometer is suitable for fresh or salt water tanks, and will activate an alarm when water temperature falls to harmful level. Provides both room and water temperatures, and includes 1 x AAA battery.

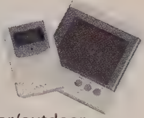
Y 5033 **$31.80**

### Dual Temperature Alert Thermometer

This thermometer monitors temperatures indoors and outdoors. It has 2 large, easy-to-read screens and a control alert when temperatures become too high or low.

Y 5011 **$34.80**

### Indoor/Outdoor Wireless Thermometer



Cable free wireless indoor/outdoor thermometer. Wide temperature range. Can monitor up to 3 sensors. Long range.

Y 5035 **$99.80**

### Timer Dual 2 Memory Digital

This large display timer counts down or up. Programmable to 99 hrs, 59 mins and 59 secs, with 1-minute alarm. Includes timer memory recall and folding stand.

Y 5188 **$31.10**

### Electronic Indoor/ Outdoor Thermometer/Clock

This electronic thermometer has a blue glow backlight for night viewing, easy-to-read jumbo digital display, and precision quartz accuracy.

Y 5037 **$30.30**

### Slimline Thermometer

Monitor the temperature in two places at once! Great for indoor/outdoor temperature readings or for keeping an eye on the baby's room. Compact, with large, easy-to-read LCD. Complete with battery.

Y 5007 **$32.70**

### Thermometer/ Hygrometer/Clock

This thermometer hygrometer clock is ideal for greenhouses, offices or homes. It reads indoor/outdoor temperatures and humidity. It's compact, slim design incorporates 12/24-hour clock function, min/max temperatures and relative humidity memory.

Y 5189 **$62.90**

### Electronic Pill Box Timer-Clock

Reminds you to take medicine every 4 to 6 hrs or as prescribed. Extra loud pill-time beep, fits in pocket and purse. Large compartment to safely store pills/tablets.

Y 5046 **$16.80**

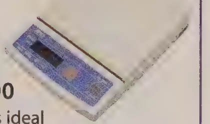
## SCALES

### Electronic Kitchen Scales

Slimline design, auto-power off function, these scales reset to 0 and convert between kilos and pounds. Comes with a 3-month warranty and uses 4 x AA batteries (not included).

Y 5021 **$66.80**

### Compact Industrial Scales HL200



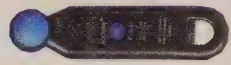
Compact scales ideal for office, laboratory or industry. LCD display with 200g capacity.

Y 5038 **$274.80**

### Pocket Balance Scale

Pocket scales ideal for hobbyists, field testing, postal, education, home or office. Grams: 100g x 0.1g. Ounces: 3.5oz x .0005oz. Troy Ounces: 3ozt x 0005ozt. Pennyweight: 64dwt x 0.1dwt.

Y 5039 **$279.80**



### Digital Tyre Pressure Gauge

Fast, efficient and highly accurate! Simply place the gauge over the tyre valve stem and push the button. Gives PSI reading in large, easy-to-read display. Includes lithium battery.

Y 5034 **$34.80**

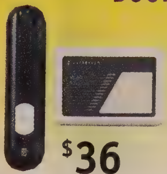
## DOOR CHIMES

### Wireless Door Chime

The bell (receiver) unit can be fixed to a wall, clipped to a belt, or put on a shelf. Colour may vary from store to store.

Y 8405

Y 8406 Receiver **$24.80**



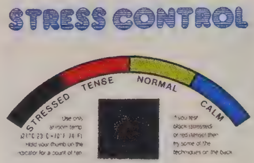
**$36**

### Securimax VisiChime Wireless Door Chime

Incorporating easy-to-see flashing indicator light for the hearing impaired.

Y 8453 **$54.60**

## Gadgets & Gift Ideas



**Stress Control Card**

Novelty mood indicator. Simply hold your thumb on the indicated space and watch the colours reveal your mood. Item not intended as a medical product.
Y 4106 **$3.10**

**Razor, Nose & Ear Hair Trimmer Set**

Trim unwanted hair from nose and ears and get a massage while shaving from the vibrating razor. Both the trimmer and shaver use 1 x "AA" battery (not included).
Y 9112 **$12.80**

**Mens Techno Neck Tie**

Exclusive to Dick Smith Electronics, this Jacquard woven polyester tie has a unique circuit board design.
Y 1111
**$19.40**

**Ultrasonic Dog Trainer/Chaser**

Ideal for training your dog, or deterring dangerous dogs, this trainer/chaser emits a high-frequency sound (20 000 to 25 000 Hz) at a level of 110 to 115 Dbs. Push button operated with an effective range of 6m. Uses a 9V battery (not included).
Y 2310 **$26.50**

**Echo Whistle Keyfinder Keyring**

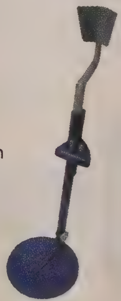
You'll never lose your keys again! With a keyfinder keyring, your keys are only ever a whistle away.
Y 1070 **$5.30**

**Speak E-Z Motorbike 2 Way Communication**

For uninterrupted 2-way communication between motorbike partner riders. With hands-free operation and volume control. Easy to connect. Fits all helmets easily. Uses 4 x AA batteries (not included).
Y 2306 **$24.60**

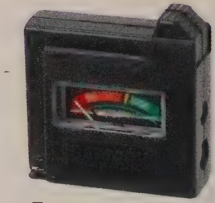
**3-in-1 Bike Computer**

Kids will love keeping track of how fast or how far they've cycled by monitoring speed, time and distance with the 3 in 1 Bicycle Computer. Features LCD display, 24 hour clock, auto start and is water resistant. Uses CR2032 lithium battery (included).
Y 4116 **$36.90**



**Treasure Hunter Metal Detector**

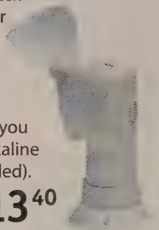
The perfect gift for children and amateur treasure hunters. A great hobby for the weekend or whilst on holidays, in the bush or at the beach.
Y 9099 **$122.10**



**Battery Tester**

Handy Size Battery Tester No Batteries Required Test All AAA, AA C, D, 9 Volt Batteries.
Y 5018 **$11.60**

### FANS



**Battery Operated Fan**

With an on/off switch and suction cup for easy mounting, this portable fan provides powerful airflow and quiet operation to keep you cool. Uses 1 x D alkaline battery (Not included).
Y 8519 **$13.40**

**12 Volt DC Mini Fan**

12 volt oscillating mini fan. Ideal for trucks, cars, caravans and boats. Has a strong suction cup for easy installation. Perfect for those hot summer vacation trips.
Y 8524 **$13.60**

**Portable Desk Fan**

Battery operated portable desk fan. 2 speed settings with powerful airflow and removable stand.
Y 8531 **$24.60**

### Digital Pedometer

step kg kcal
RESET WEIGHT
step Cal
CALORIE CONSUMPTION BY BODY WEIGHT

A super-small digital calorie meter and pedometer with belt-clip. A microcomputer calculates calorie consumption according to the intensity of the exercise, so you can work out just the right amount of exercise you need to keep your weight down.
Y 5002 **$58 70**

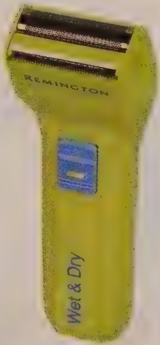
### Electronic Acupuncture

A safe, hi-tech replacement for acupuncture without the use of needles. Using electronic signals, this remarkable device both searches for and stimulates acupuncture points. Compact, light-weight and easy to operate, this unit features useful sound and light indicators and is powered by two lithium batteries (included).
Y 5073 **$99 70**

### Hair Clipper Set

Great for low cost home hair cuts, this set includes 4 trimmer guides, a cleaning brush, a 7-inch barber comb and blade protective cap.
Y 9038
**$36 90**

### Remington Lady Wet/Dry Shaver



Wet/dry lady shaver battery operated. Built in trimmer. Slimline handle and angled head. Comes with a travel pouch and cleaning brush.
Y 9092
**$39 80**

BRAUN

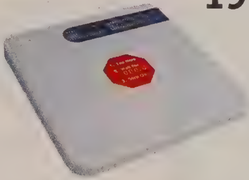
### ThermoScan Thermometer

Simple, fast and painless for parents and children. Takes the temperature in 1 second. It's accurate - the eardrum shares the same blood supply with the body's temperature control centre. And it's safe - risk of cross-contamination is virtually eliminated. 9V alkaline battery required.
Y 9115 **$118**

new for
2002
microlife

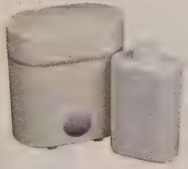
### Microlife Automatic Blood Pressure Monitor

A simple, daily blood pressure check. The Microlife BP 3BT0 is the simple way to check your blood pressure. Safe to use with a pacemaker as it doesn't cause any electrical interference. Save money by monitoring your own blood pressure at home.
Y 5106 **$199 70**



### Thinner Bathroom Scales

Highly accurate (uses a strain gauge instead of springs) electronic scales that are only 25mm thick! With auto zero set and large, easy-to-read LCD display, they read to 0.5kg. Comes complete with lithium batteries and a full one-year warranty.
Y 5027 **$108**



### One Touch Jewellery Cleaner

Small but mighty, this jewellery cleaner does the job of cleaners twice it's size with equal proficiency. Simply use for 3 minutes on any jewelry and it will come out looking as good as new!
Y 9199 **$69 80**

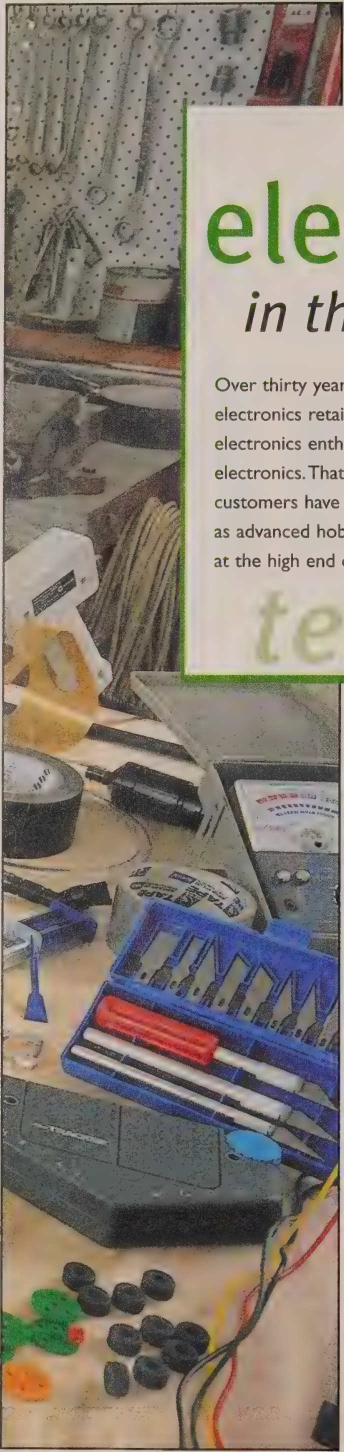
### Waist Massager

This handsfree, wear it anywhere, waist massager is ideal for relaxing and soothing a sore back.
Y 5074 **$28 50**

## MASSAGER

### Remington Vigoro Ultra Massager MA303

An ideal gift to pamper someone special. The Remington Vigoro Ultra Massager's long reach adjustable handle can bend and twist to reach the back with ease. It has 5 interchangeable heads for strong vibration action massage plus infrared to heat.
Y 9081 **$49 80**



# electronics

## *in the beginning. . .*

Over thirty years ago, Dick Smith Electronics was a small electronics retailer. A large part of our business was young electronics enthusiasts taking their first steps into the world of electronics. That was a generation ago. Many of those customers have continued their interest with printed circuits as advanced hobbyists. Others have gone on to pursue careers at the high end of the industry.

*test*

*tools*

*equipment*

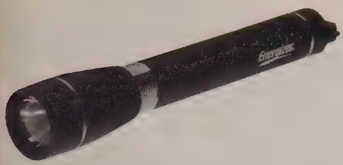
*information*

As you progress in technical expertise, we'll be here to back you up with a range of tools, electronic measuring equipment, books, labour saving gadgets and all the bits and pieces you need to get the job done with a minimum of hassle. And should you find yourself at the high end of electronics, we'll be there as well! Have a browse through the electronics pages, and you'll see we have a tool for every purpose - testers, meters, measurers and markers, solar solutions, componentry for building and repairs, gears, switches, audio and data . . . a very comprehensive range!

We've launched a generation of electronics enthusiasts and professionals. We stand by our products and we'll be here with the latest and greatest for the next generation.

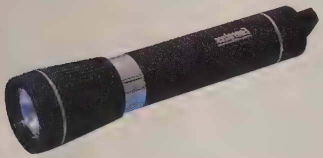
books

*components*



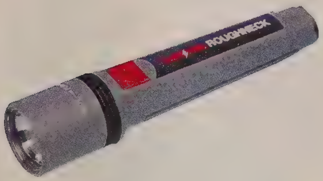
### Energizer Professional Series Torch

The Energizer Professional Series torch is weatherproof, corrosionproof, and shockproof. It as a precision focus beam and is powered by 2 x 'AA' batteries (not included).
Y 2295
**$19.40**



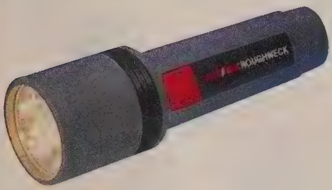
### Energizer Microlight Torch

It's small but bright enough for most needs! Water, corrosion resistant and shockproof.
Y 2175
**$16.60**



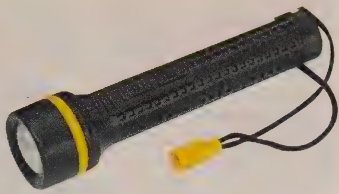
### Roughneck Torch

Up to 80 times brighter than ordinary penlights! With adjustable beam, it has both narrow spotlight and wide angle floodlight.
Y 1124
**$18.80**



### Roughneck Torch

Industrial-strength and water-resistant. With a bright krypton globe. Uses 2 x 'D' size batteries.
Y 1129
**$18.95**

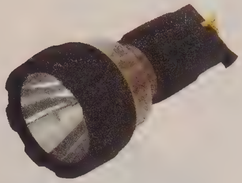


### Rubber Torches

Great for the outdoors! Uses 2 x "AA" batteries.
Y 2139
**$5.40**

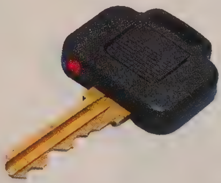
### Heavy Duty Tough Flashlight

A solid and professional quality flashlight for tradesmen, security, campers or anyone who needs a dependable torch. 3 x "D" size batteries.
Y 1091
**$22.60**



### Energizer 2 in 1 Torch

Doubles as a spot beam and an area light, this rugged torch is ideal for camping, outdoor exploring, household, workshop and blackouts. Requires 4 x 'A' (not included).
Y 2293
**$26.40**

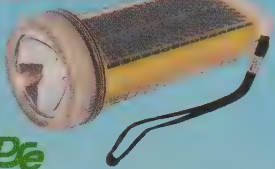


### Keylight

At night have no trouble finding keyholes in the dark. The miniature light unit simply clips onto your key and has a hold down button to activate a light bright enough to find the locks.
Y 1059
**$7.60**

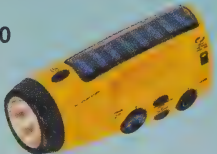
## SOLAR TORCHES

*Exclusive to Dick Smith Electronics*



### Weather Proof Solar Torch

This water resistant torch has a nylon strap, a bicycle mounting kit, flashing LEDs and includes a warning light.
O 2045
**$25.50**



### Solar Powered Radio Torch Siren

AM/FM radio emergency siren, and torch with flasher option. Can be powered through solar energy, built-in dynamo generator, optional AC/DC adapter or AA batteries (not included).
O 2052
**$49.95**

### Solar Radio/Torch/Siren with Dynamo

This compact torch/lantern with flasher features an AM/FM radio and an emergency siren. Can be powered through solar energy, built in dynamo, an AC/DC adaptor (not included), or AA batteries. It is the ideal device to take on camping trips or for use in emergency kits.
O 2053
**$69**

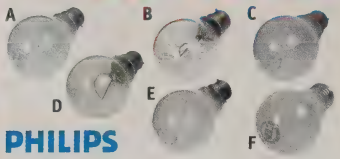
Ideal for solar applications

### Twin Fluoro Light 12V

Twin tube fluorescent light with cigarette lighter plug. Selectable one or two tube operation. Low power consumption - ideal for solar applications.
O 3198
**$35.60**

# GLOBES, Globes & MORE GLOBES

*We stock a range of quality globes at competitive prices. In Bayonet and Edison screw styles. An assortment of different sizes and styles such as general household, daylight reflectors, dichronic globes, pilots (fridge and oven), fancy rounds… and many more…*

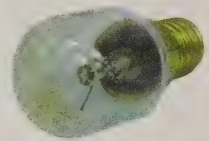


**PHILIPS**

### Bulb Pearl/Clear GLS

The GLS (General Lighting Service) lamp is a high-efficiency purpose lamp with an average life of 1000 hours.

| | | | | | |
|---|---|---|---|---|---|
| A | S 8310 | **$1.49** | D | S 8307 | **$1.49** |
| B | S 8309 | **$1.49** | E | S 8306 | **$1.49** |
| C | S 8308 | **$1.49** | F | S 8318 | **$1.49** |



**PHILIPS**

### Bulb Clear Pilot 15W SES

A small lamp for use where limited space is available and/or low lighting levels are required. Pilot lamps are clear glass.
S 8369 **$4.65**

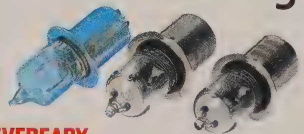
**PHILIPS**

### Bulb Spotline Reflector

A NEW generation blown-bulb reflector lamp which produces more light in the centre of the beam achieved due to the computer designed double reflector optic.

A S 8432 B S 8433 **$4.65**

C S 8436 **$5.95**

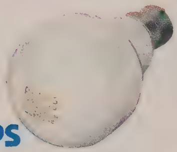


**EVEREADY.**

### Halogen Torch Globes

Standard captive fittings. Note: Halogen Bulbs operate at higher temperatures and should only be used in torches designed for their use!

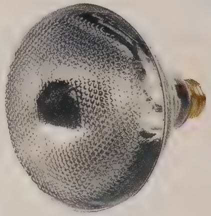
| | | |
|---|---|---|
| 2.8V @ 0.85A | S 3950 | **$10.60** |
| 4.0V @ 0.85A | S 3955 | **$10.60** |
| 5.5V @ 1.0A | S 3960 | **$12.95** |



**PHILIPS**

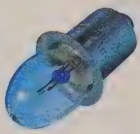
### Bulb Softone White 75W BC

The softone lamp is a uniquely shaped, decorative lamp, which creates a pleasant, relaxed atmosphere. With its soft white light, it offers a high degree of visual comfort with far less glare compared to normal lamps.
S 8332 **$1.59**



### Par 38 Bulb 150W

Quality high wattage bulb commonly used for sensor light systems, including our Arlec Security Floodlights.
S 5129 **$8.95**



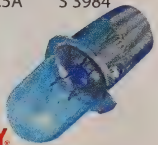
**EVEREADY.**

### Heavy-Duty Torch Globes

Standard flange fit heavy duty torch globes.

| | |
|---|---|
| 2.4 Volt @ 0.5A | S 3967 |
| 3.6 Volt @ 0.5A | S 3966 |
| 4.8 Volt @ 0.5A | S 3965 |
| 6.0 Volt @ 0.5A | S 3984 |

**$3.51**



**EVEREADY.**

### Krypton Globes

Higher Performance, extra bright Krypton globes to suit most torches, lanterns, etc. Standard flange fit.

| | |
|---|---|
| 2.2V @ 0.47A | S 3982 |
| 2.4V @ 0.7A | S 3961 |
| 3.6V @ 0.75A | S 3962 |
| 4.8V @ 0.75A | S 3963 |

**$3.70**

PHILIPS
ECOTONE
PL ELECTRONIC-U
WARM WHITE
75 WATT
15
Saver
EnergySaver
PHILIPS

**PHILIPS**

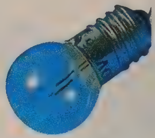
### Bulb EnergySaver Compact Fluorescent 15W BC

From the new PLET range, a lamp offering you a more compact light source and a higher lumen output in addition to the benefits and advantages of integrated compact fluorescents. (15W fluorescent = 75W standard). S 8482 **$16.95**

**PHILIPS**

### Bulb T22 Oven Lamp 15W SES

For use in oven and microwave applications up to 300 degrees C.
S 5043 **$6.95**



**EVEREADY.**

### Heavy Duty Screw-Type Torch Globes

Heavy-duty screw-type torch globes.

| | |
|---|---|
| 1.2V @ 0.22A | S 5081 |
| 2.3V @ 0.27A | S 3948 |
| 2.5V @ 0.3A | S 3947 |
| 3.7V @ 0.3A | S 3944 |
| 6.2V @ 0.3A | S 3946 |

**$2.86**

DSE **Fog Machine F-80 with Remote**

Perfect for adding atmosphere to stage productions, discos and parties. Comes with a 2.9m wired remote control and a mounting yoke with lets you fix the machine to lighting stands while still allowing full control. Capable of filling up to 2500 cubic feet per minute.

M 6000 $139

Fog Juice
SMOKE AND FOGGING FLUID

DSE **Fog Machine Juice**

1 litre of non-toxic fog juice for use with M-6000. Water-based, non-flammable.

N 6000 $19.95

new for 2002

ARLEC **Strobe Light**

Add special effects to your parties – ideal for mobile DJs and bands. Features a variable flash rate and an adjustable mounting braket.

MP0154 $39.20

new for 2002

RINGGRIP **180 Piece Curtain Light Kit**

10, 1.8m long strands of 18 lights over a 1.8m width. 8 function controller allows for various lighting effects.

MP0126 $48

RINGGRIP
GardenSafe
PartyLights

new for 2002

ARLEC **Double Disco Light**

Spice up your parties with these twin disco lights. Features a mirrored base for added lighting effects. Uses an indoor transformer and replaceable 12V globes.

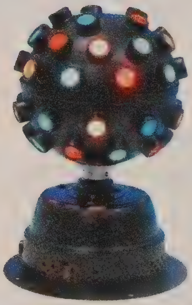
MP0150 $57

new for 2002

ARLEC **20cm Disco Light**

Mounted on the ceiling or placed on a table, the Arlec Disco Light will liven up any function. With a 4m power lead.

MP0151 $97



new for 2002

ARLEC **8" Mirror Ball kit**

With a rotating 8" (20cm) chrome mirror ball and 30W spot light with four coloured filters. Ball can be floor or ceiling mounted with one'D' battery (not included).

MP0153 $114

new for 2002

ARLEC **Multi Spot Disco Light**

With direct audio input to be music responsive, also features speed modes, sensitivity control and a remote control (2 AAA batteries required). With mains transformer

MP0152 $168

40 pack
digitor
EXTRA ALKALINE

30 pack
30 multi pack

## digitor Extra Alkaline Batteries

Extra quality • Extra long life • Quality assured

| | | | |
|---|---|---|---|
| 30 pack | AAA | S 4041 | **$26** |
| 40 pack | AA | S 4040 | **$29** |
| 30 pack | mixed | S 4045 | **$39** |

## Power up with Panasonic

Panasonic Alkaline are recommended for applications where heavy usage is required on a constant basis.

| Type | No. | Price | Type | No. | Price |
|---|---|---|---|---|---|
| 2xAAA | S 7226 | **$4.90** | 8 x AA | S 7245 | **$15.30** |
| 4xAAA | S 7242 | **$9.60** | 2xC | S 7228 | **$7.20** |
| 2xAA | S 7227 | **$4.90** | 2xD | S 7229 | **$8.40** |
| 4xAA | S 7231 | **$8.30** | 9V | S 7230 | **$7.60** |

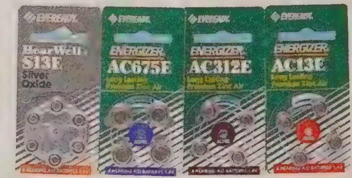
## Panasonic
## High Performance Watch Batteries Silver Oxide

Silver Oxide batteries to keep your watch running longer. High drain batteries that are suitable for watches with backlight or alarm.

| Type | No. | Price |
|---|---|---|
| SR41 | S 7459 | **$6.95** |
| SR43 | S 3295 | **$6.70** |
| SR44 | S 3293 | **$7.85** |
| SR1120 | S 7458 | **$6.95** |
| SR621 | S 7454 | **$6.95** |
| SR626 | S 7456 | **$6.95** |
| SR920 | S 7455 | **$6.95** |
| SR927 | S 7461 | **$6.95** |
| SR1130 | S 3292 | **$6.95** |

## Energizer Hearing Aid Batteries

| No. | Price |
|---|---|
| S 3040 | **$6.75** |
| S 3039 | **$6.75** |
| S 3038 | **$6.85** |
| S 3042 | **$7.80** |


EVEREADY
HearWell S13E Silver Oxide
ENERGIZER AC675E
ENERGIZER AC312E
ENERGIZER AC13E

## Lithium

Commonly used in Digital Diaries. For the longest life in all the popular sizes.

| Type | No. | Price |
|---|---|---|
| CR2016 | S 3332 | **$7.75** |
| CR2025 | S 3330 | **$7.75** |
| CR2032 | S 3331 | **$7.75** |
| CR1220 | S 3337 | **$9.30** |

Panasonic
CR2032

## Non-Rechargeables

| | | |
|---|---|---|
| 2 x AA Lithium Energizer L19Bp2 | S 3261 | **$16.95** |
| 9 Volt Lithium Ultralife | S 3165 | **$21.59** |
| 6 Volt Heavy Duty Panasonic 609 | S 7352 | **$10.75** |
| 12 volt GP27A | S 3434 | **$7.30** |

Energizer
Energizer
ULTRALIFE

## Photographic Batteries

High quality batteries for the high power needs of photographic equipment.

| Type | No. | Price |
|---|---|---|
| 4LR44 | S 7422 | **$7.45** |
| LRV08E | S 7423 | **$7.45** |
| CR123A | S 7337 | **$17.80** |
| CRP2P | S 7338 | **$18.90** |
| 2CR5M | S 7348 | **$18.90** |

Panasonic
Panasonic
Lithium

Kodak MAX
Kodak MAX flash

| | |
|---|---|
| **Kodak Max Outdoor Disposable Camera**<br>G 8652 | **$13.90** |
| **Kodak Max Flash Camera**<br>G 9005 | **$21.95** |

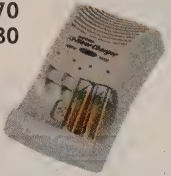
Kodak GOLD
Kodak MAX

## Kodak Film

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| G 9007 | 200/24 | 3pk | **$14.70** | G 8647 | 400/24 | 3pk | **$15.20** |
| G 9006 | 200/24 | 2pk | **$11.90** | G 9003 | 400/24 | 2pk | **$12.70** |
| G 9008 | 200/24 | | **$7.20** | G 9004 | 400/24 | | **$7.70** |

## digitor NiMH Rechargables

| | | | |
|---|---|---|---|
| S 3149 | 2 x AA | 1700 mAH | **$17.80** |
| S 3148 | 4 x AA | 1700 mAH | **$31.60** |
| S 3147 | 2 x AAA | 700 mAH | **$16.70** |
| S 3146 | 1 x 8.4V | 150 mAH | **$21.80** |



## Rayovac NiMH One Hour Charger

Rayovac introduces the world's first truly 1 hour charger for high-capacity NiMH's.
Speed charges 1600mAh AA and 700mAh AAA NiHM batteries in one hour or less. Smart Charger Technology charges each cell to full capacity. Includes 2 batteries.

S 4022 **$139.95**

## digitor NiCad Rechargables

| | | | |
|---|---|---|---|
| S 3141 | 2 x AA | 700 mAH | **$9.65** |
| S 3140 | 4 x AA | 700 mAH | **$18.60** |
| S 3142 | 2 x AAA | 300 mAH | **$9.60** |
| S 3143 | 2 x C | 2500 mAH | **$19.80** |
| S 3144 | 2 x D | 4500 mAH | **$21.70** |
| S 3145 | 1 x 8.4V | 150 mAH | **$20.80** |

## Rayovac NiMH

| | | | |
|---|---|---|---|
| S 4034 | 2 x AA | 1600 mAH | **$19.95** |
| S 4023 | 2 x AAA | 700 mAH | **$19.95** |

## Panasonic NiMH

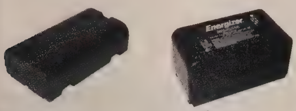
| | | | |
|---|---|---|---|
| S 7513 | 2 x AA | 1600 mAH | **$17.80** |
| S 7514 | 2 x AAA | 700 mAH | **$17.80** |

## Panasonic Rechargeables

Panasonic Rechargeable batteries offer exceptional reliability. Made in Japan, Panasonic rechargeables takes up to 1000 charges. When normal batteries are costing you a small fortune switch to rechargeable and SAVE $$.

### Standard Rechargeables 1.25 Volt

| Type | Description | No | Price |
|---|---|---|---|
| 2 x AAA | 250MAH | S 7246 | $13.99 |
| 2 x AA | 650MAH | S 7247 | $11.85 |
| 2 x C | 1500MAH | S 7248 | $23.65 |
| 2 x D | 1500MAH | S 7249 | $26.95 |



## Video Camera Batteries

| | | |
|---|---|---|
| S 3447 | CM9172 | **$117.65** |
| S 3515 | CCM5060M | **$192.55** |

## Solder Tab Rechargeables

| | | | |
|---|---|---|---|
| S 3412 | AA | 600 mAH | **$9.90** |
| S 7124 | Sub C | 1.2V 1.3Ah | **$14.95** |
| S 3411 | C | 1.2V 2Ah | **$16.15** |

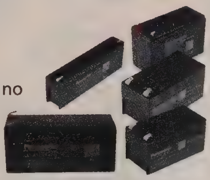
## Rechargeable Alkaline

| | | |
|---|---|---|
| 4 x AAA 650 MAh | S 3481 | **$23.95** |
| 4 x AA 1500 MAh | S 3482 | **$23.35** |
| RAM Energy Set – Charger + 4 x AA Rechargeable Alkaline Battery | S 3485 | **$52.95** |

The all new rechargeable 1.5 volt alkaline batteries are fully charged and ready for immediate use. 25-600 charges possible. 0% cadmium, 0% mercury, 0% nickel means safe on the environment. 5 years shelf life.

## Panasonic Sealed Lead Acid Batteries

These Lead Acid sealed batteries require no maintenance, are leak proof, and can be either trickle charged or fast charged.



| Type | Description | No | Price |
|---|---|---|---|
| 12V, 1.3Ahr | 97mm x 56mm x 47.5mm | S 7368 | **$64.15** |
| 12V, 2.2Ahr | 177mm x 60mm x 30mm | S 7367 | **$74.85** |
| 12V, 3.4Ahr | 134mm x 67mm x 60mm | S 7366 | **$74.85** |
| 12V, 6.5Ahr | 151mm x 94mm x 64.5mm | S 7369 | **$80.20** |

## Battery Holders

| Description | No. | Price | Description | No. | Price |
|---|---|---|---|---|---|
| 2 x AAA Cells | S 6143 | **$1.78** | 4 x C Cells, flat | S 6104 | **$3.44** |
| 4 x AAA Side by side | S 6140 | **$2.43** | 1 x D | S 6101 | **$2.43** |
| 2 x AA Snap Terminal | S 6112 | **$1.78** | 4 x D Side by side | S 6102 | **$3.32** |
| 4 x AA Long and flat | S 6114 | **$2.43** | 216 9 Volt Battery Snap | S 6100 | **$1.78** |
| 4 x AA Square | S 6124 | **$2.43** | Lithium Button Type | S 6160 | **$6.95** |
| 6 x AA Rectangular | S 6116 | **$2.43** | 1 x N Cell | S 6147 | **$1.78** |
| 8 x AA Rectangular | S 6128 | **$3.51** | 3 x AA with switch | S 6153 | **$1.78** |
| 10 x AA White | S 6130 | **$5.35** | 4 x AA with switch | S 6154 | **$2.06** |
| 1 x C | S 6103 | **$2.43** | 2 x AA with switch | S 6155 | **$1.72** |

ALAR
WARN
PROTECT

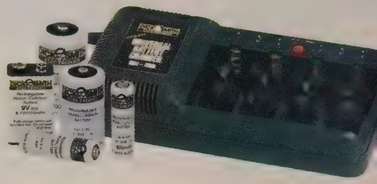
## NIMH CHARGERS

### NiCad/NiMH Cabinet Charger and Discharger

An economical charger that is ideal for the most common NiCad and NiMH batteries. Charges up to 4 'AAA', 'AA', 'C' ,'D' batteries or up to 2 x 9V cells. Batteries not included.
M 9503 **$24.95**

### Nicad/NiMH Fast Plug-In Charger

Charges up to 4 'AA' or 'AAA' or up to 2 x 9V cells. Will charge in five hours NiCad and eight hours NiMH. Batteries not included.
M 9502 **$34.95**



### NiCad/NiMH Fast Cabinet Charger

Charges up to 4 'AA' or 'AAA', 'C', 'D' or up to 2 x 9V cells. Will charge in five hours NiCads and eight hours NiMHs. Batteries not included.
M 9501 **$44.95**

## NICAD CHARGERS

### NiCad Battery Charger

Plug in external charger for easy recharging without removing the batteries. It will recharge 7.2-12 volt cells and comes with a multi-way adaptor to fit most charging jacks. Fully approved.
M 9617 **$24.95**

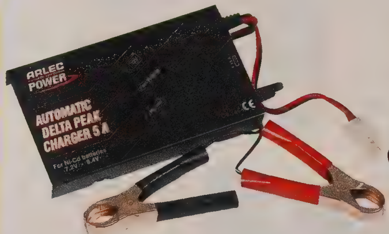
### NiCad Battery Charging Cabinet

Charges up to 8 'AA' or 'AAA' NiCads or up to 4 of these plus two 9V cells. It has an indicator LED for each compartment. Just plug it into the mains. Batteries not included.
M 9508 **$29.95**

## RC CAR CHARGERS

### 9.6V NiCad Battery Charger

Will charge up your 9.6V battery packs in just 2 hours. It includes a connector to suit our S-3313 Battery Pack.
M 9618 **$34.95**



### Battery Charger RC Car 7.2V

Suits most radio controlled cars with a 7.2V NiCad battery pack. Plug in and charge. Takes about 15 to 40 mins depending on the batteries capacity.
M 9615 **$54.95**

### ARLEC 7.2V NiCad Battery 240V/12V Charger

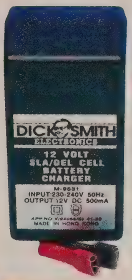
NiCad Fast charger for use with remote control cars and planes. Fast charges 7.2V NiCad packs using 240V mains power or 12V car cigarette lighter socket.
M 9613 **$79.95**

## LEAD ACID BATTERY CHARGERS

### 12 Volt Lead Acid Battery Charger

Plug-in battery charger specifically designed for sealed lead-acid batteries. Features electronic regulator circuitry with built in voltage reference which controls battery charging over a range of mains input voltages.

M 9531 **$39.95**

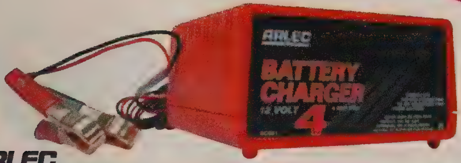


**ARLEC**

### Charger 6V/12V 1A

Sealed Lead Acid Battery Charger. Selectable 6V or 12V @ 1 amp output. Battery clips allow for easy connection to a variety of batteries.

M 7521 **$49.95**



**ARLEC**

### Car Battery Charger

Arlec 12V 4A battery charger, features a battery condition analyser function and offers short-circuit protection in a strong flame retardant case.

M 9805 **$39.80**

**ARLEC**

### Auto Boost 6A Lead Acid Battery Charger

LED display for 12-volt batteries used in cars, caravans and boats. An automatic charging mode to hold batteries to full charge and a condition analyser function.

M 9806 **$84.95**

## DC POWER SUPPLIES

### DC Power Supply 9V @ 200mA

An economical supply suitable for equipment that uses 9V DC or a 9V transistor type battery such as cassettes and transistor radios. Comes with 3.5mm plug (tip positive) and simply plugs into mains.

M 9614 **$24.95**

### DC Power Supply 9V @ 600mA

A fixed-voltage 9V supply suitable for equipment that needs that little extra power. Supplied with multi-way output adaptor. Selectable polarity.

M 9560 **$34.95**

### DC Power Supply 12V DC @ 1 Amp

This high-power supply comes in a compact plug-in style case and is ideal for a wide range of applications including alarm systems and intercoms. Offers selectable polarity and is supplied with a multi-way output adaptor.

M 9670 **$42.40**

### DC Power Supply 12V DC @ 1A with Lighter Socket

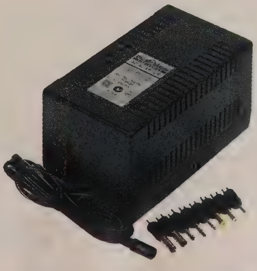
The cord mounted lighter socket on this power supply allows you to power 12V car or cellphone accessories in the home or garage. Rated at 1 amp.

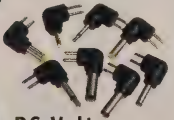
M 9671 **$42**

### Adaptor 24 Volt DC 1.5 Amp

Desktop power supply providing 24V DC @ 1.5 Amp. Mains input and a multi way adaptor output catering for multi purpose use. 150mm (L), 86mm (W), 85mm (H).

M 9636 **$66**





### DC Voltage Adaptor Set

Male: 2.5, 3.5.
Female: 0.7, 1.7, 3.5, 5, 5.5.

M 9600 **$10.40**

### Voltage Adaptor DC Extension Lead

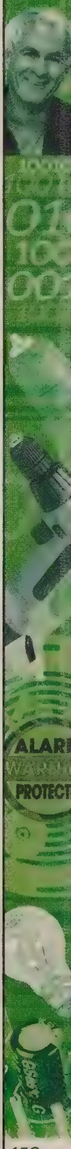
2 metre long extension lead for power supplies and power adapters.

M 9601 **$7.50**

### Right-Angle Adaptor Plug/lead set

Contains 6 versatile adaptors and a 1.8m DC lead.

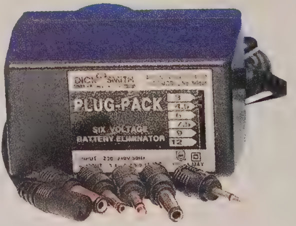
M 9603 **$12.95**



# *DC Power Supplies*

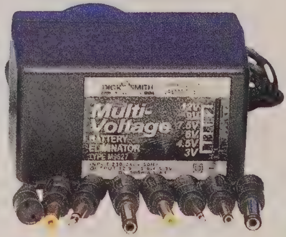
## UNREGULATED MULTIVOLTAGE

### Multi-Voltage DC Plug Pack 3-4.5-6-7.5-9-12V DC @ 200mA (300mA max)



With 6 selectable voltages, this is an extremely versatile supply for around the home and workshop. Includes selectable polarity and multi-way output adaptors.
M 9626 $24^95

### Multi Voltage Power Adaptor



Unregulated DC power adaptor with multi-plug output adaptors and selectable polarity. Versatile power supply for around the home or workshop. Voltage: 3, 4.5, 6, 7.5, 9, 12. Current: 500mA. Includes 8 adaptor plugs: 0.7 x 2.35mm, 1.35 x 3.5mm, 1.7 x 4.0mm, 1.7 x 4.75mm, 2.1 x 5.5mm, 2.5 x 5.5mm Female, 2.5mm Male, 3.5mm Male.
M 9627 $29^95

### Multi-Voltage DC Plug Pack 6-7.5-9-12V DC @ 1A

MULTI-VOLTAGE DC ADAPTOR

Similar to M-9627 but offers four voltage selections (6V, 7.5V, 9V & 12V) to a maximum of 1 Amp. Supplied with 8 tips to suit most common connectors and offers selectable polarity.
M 9628 $40^80

## REGULATED MULTIVOLTAGE

### Regulated Adaptor 3-12VDC 0.5A

DICK SMITH ELECTRONICS
REGULATED MULTIVOLTAGE AC ADAPTOR

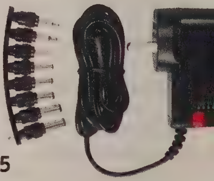
Regulated output suitable for use with more sensitive electronic apparatus. Provides selectable 3, 4.5, 6, 7.5, 9, 12V DC @ 500mA reversible polarity output with connections to suit most devices.
M 9727 $36^20

### Regulated DC Power Supply 3-6-9-12V DC @ 0.9 Amp

MULTI VOLTAGE REGULATED DC SUPPLY

High-output, heavy-duty supply with 4 voltage selections to a maximum of 0.9 amp. Has overload protection and simple screw terminal connections.
M 9630 $36^20

### International Power Adaptor 90-260V, 3,4.5,6,7.5,9,12V DC @ 700mA

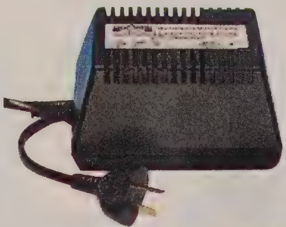


This is an essential travel companion with a variable input voltage from 90 to 260V AC at 47-63Hz allows you to power a variety your DC appliances no matter which country you're in.
M 9927 $39^95

**Also available:**
**International Power Adaptor 90-260V AC,5,7.5,12,15,18, 23V DC @ 1A-300mA** M 9926 $39.95

## 13.8V DC SUPPLIES

### 13.8V DC Power Supply Unregulated

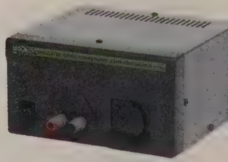


An unregulated power supply ideal for portable TVs and car radios. It has a power rating of 13.8V DC at 1.5A. (18V max.)
M 9544 $69

### 13.8V DC Power Supply @ 4A Peak

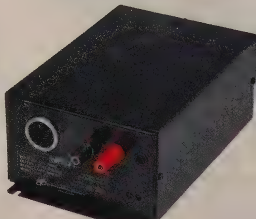
Ideal for high-current, high peak demand applications. 3-amp continuous (or 4A continuous @ 75% duty cycling). Ideal for small HF transceivers, as a bench supply, or a supply for 'auto' equipment.
M 9547 $139

### 13.8 Volt DC @ 2 Amp, 4 Amp Peak Regulated



Ideal for the workshop, this DC power adaptor comes with banana posts, a cigarette lighter socket and an on/off switch. Provides regulated 13.8V DC output at 2A (4A, 50% duty cycle).
M 9540 $99

### 13.8V DC Power Supply @ 5 Amp/7 Amp Surge



With a 5 amp continuous rating and able to supply up to 7 amps during surges, this supply is ideal for amateur transceivers, bench supply or running auto stereo equipment. Comes with a cigarette lighter socket.
M 9546 $169

## THE TRAVELLER'S PASSPORT TO WORLD POWER! ELECTRICAL INFORMATION GUIDE.

### Your Step-by-Step Guide

For Australasian appliances used overseas:

1 Select your destination country from the table.
2 Match the number following the country with a plug adaptor shown below.
3 Check the letter following the country against the voltage table to determine whether you will need a step-up transformer.

For foreign appliances to be used in Australasia:

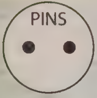
1 Check the voltage rating of your appliance to determine whether you will need a step-down transformer to run it from 230 volt.
2 If the appliance is rated for 230 volt operation, the M7302 reverse adaptor will adapt most foreign plugs to Australasian outlets.

**VOLTAGE: A** = 115V (110 -130)
**B** = 230V (220 -240) **C** = BOTH

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Afghanistan | 2 | B | France | 1 | C | Mexico | 4 | A | Swaziland | 2 | B |
| Algeria | 4 | C | Germany | 1 | B | Monaco | 1 | C | Sweden | 1 | B |
| Argentina | 1 | B | Great Britain | 2 | B | Morocco | 1 | C | Switzerland | 1 | B |
| Australia* | | | Greece | 1 | B | N. Caledonia | 1 | B | Syria | 1 | B |
| Austria | 1 | B | Hong Kong | 1,2 | B | N. Guinea* | | | Tahiti | 1,4 | C |
| Bahamas | 4 | C | Hungary | 1 | B | Nepal | 2 | B | Taiwan | 4, | C |
| Bali (Indo.) | 1 | B | India | 1,2 | B | Netherlands | 1 | B | Thailand | 1,3,4 | B |
| Bangladesh | 2 | B | Indonesia | 1 | C | Nigeria | 2 | B | Tonga* | | |
| Belgium | 1 | B | Iraq | 1,2 | B | Norway | 1 | B | Trinidad | 1,2,4 | C |
| Brazil | 1 | C | Iran | 1,2 | B | Oman | 1 | B | Turkey | 1 | B |
| Bulgaria | 1 | B | Ireland | 2 | B | Pakistan | 2 | B | USA | 3,4 | A |
| Burma | 2 | B | Israel | 1 | B | Paraguay | 1 | B | Uganda | 2 | B |
| Canada | 3,4 | A | Italy | 1 | B | Peru | 1,4 | C | Vietnam | 1 | C |
| Chile | 1,4 | B | Japan | 4 | A | Philippines | 4 | C | W. Indies | 4 | A |
| China* | 1,4 | B | Jordan | 1 | B | Poland | 1 | B | Wales | 2 | B |
| Colombia | 4 | A | Kenya | 2 | B | Portugal | 1 | B | Yemen | 2 | B |
| Cuba | 4 | A | Korea | 2,4 | C | Romania | 1 | B | Yugoslavia | 1 | B |
| Cyprus | 1 | B | Kuwait | 2 | B | Russia | 1 | B | Zaire | 2 | B |
| Czech Rep. | 1 | B | Lebanon | 1 | B | Saudi Arabia | 1 | B | Zambia | 1,2 | B |
| Denmark | 1 | B | Libya | 2 | B | Scotland | 2 | B | Zimbabwe | 1,2 | B |
| Egypt | 1 | B | Liechtenstein | 1 | B | Singapore | 2 | B | | | |
| Ethiopia | 1 | B | Luxembourg | 1 | B | Slovakia | 1 | B | | | |
| Fiji* | | | Malaysia | 1,2 | B | South Africa | N/A | B | | | |
| Finland | 1 | B | Malta | 1,2 | B | Spain | 1 | C | | | |

* Uses New Zealand Mains Plug configuration

### ravel Adaptor lew Zealand to urope

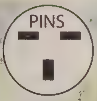


onverts New Zealand mains plug to t European style. Also Bali, Noumea, ahiti, parts of Middle East, Asia and outh America. Does not convert oltage.

1 7314

$14^{95}$

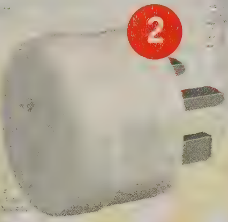
### Travel Adaptor New Zealand to UK



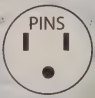
Converts New Zealand mains plug to fit UK, Ireland, Singapore, Hong Kong, parts of the Middle East and Africa. Does not convert voltage.

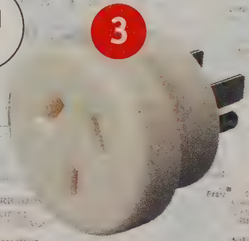
M 7312

$14^{95}$



### ravel Adaptor New ealand to USA



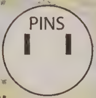


onverts New Zealand mains lug to suit USA and Canadian tyle plugs. Does not convert oltage.

1 7316

$14^{95}$

### Travel Adaptor New Zealand to Japan



Converts New Zealand mains plug to suit Japanese, Mexico, Taiwan and parts of South America. Does not convert voltage.

M 7315

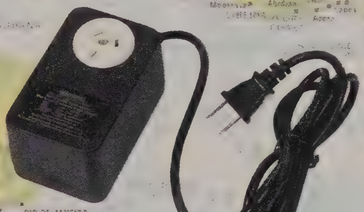
$14^{95}$

### lulti Reverse Travel Adaptor

onverts USA, Japan, Europe, Great Britain nd many other mains plugs to the New ealand system. Earthed for safety. Does not onvert voltage.

1 7302

$16^{95}$

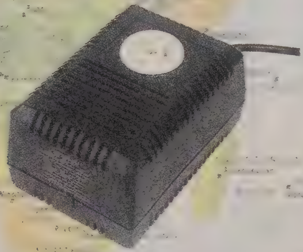


### Step-up Transformer Adaptor 50VA

Run your New Zealand or 230V AC Appliances over in the States. Converts American Voltage (115V AC) to NZ Voltage (230V AC). Only suitable for small appliances up to 50VA.

M 1181

$79^{95}$



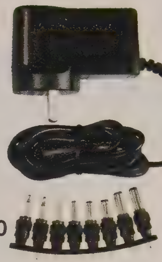
### Step-up Transformer Adaptor 100VA

Run your New Zealand or 230V AC Appliances over in the States. Converts American Voltage (115V AC) to NZ Voltage (230V AC). Only suitable for small appliances up to 100VA.

M 1182

$129

# Travel Products



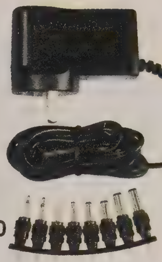
## 4.5VDC Power Adaptor

A 4.5V @ 1200mA plug pack supplied with an assortment of selectable polarity plugs.

| | |
|---|---|
| Input Voltage: | 90-264VAC |
| Frequency Range: | 47-63 Hz |
| Rated Output Voltage: | 4.5VDC |
| Rated Current @ 230V: | 1.2A |
| Rated Current @ 100V: | 1.2A |

M 9931

$29.60



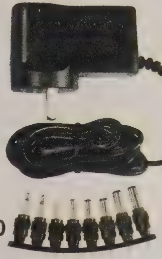
## 6VDC Power Adaptor

A 6V @ 1000mA plug pack supplied with an assortment of selectable polarity plugs.

| | |
|---|---|
| Input Voltage: | 90-264VAC |
| Frequency Range: | 47-63 Hz |
| Rated Output Voltage: | 6VDC |
| Rated Current @ 230V: | 1A |
| Rated Current @ 100V: | 1A |

M 9932

$29.60



## 9VDC Power Adaptor

A 9V @ 800mA plug pack supplied with an assortment of selectable polarity plugs.

| | |
|---|---|
| Input Voltage: | 90-264VAC |
| Frequency Range: | 47-63 Hz |
| Rated Output Voltage: | 9VDC |
| Rated Current @ 230V: | 800mA |
| Rated Current @ 100V: | 700mA |

M 9933

$29.60

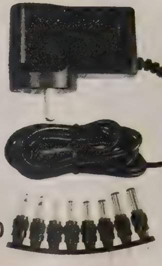
## 10VDC Power Adaptor

A 10V @ 700mA plug pack supplied with an assortment of selectable polarity plugs.

| | |
|---|---|
| Input Voltage: | 90-264VAC |
| Frequency Range: | 47-63 Hz |
| Rated Output Voltage: | 10VDC |
| Rated Current @ 230V: | 800mA |
| Rated Current @ 100V: | 700mA |

M 9934

$29.60



## 12VDC Power Adaptor

A 12V @ 700mA plug pack supplied with an assortment of selectable polarity plugs.

| | |
|---|---|
| Input Voltage: | 90-264VAC |
| Frequency Range: | 47-63 Hz |
| Rated Output Voltage: | 12VDC |
| Rated Current @ 230V: | 700mA |
| Rated Current @ 100V: | 600mA |

M 9935

$29.60

## Step-Down Transformer 240V-115V 25VA

Provides power for small appliances such as small battery chargers and radios where the load does not exceed 25W. Plugs directly into mains outlet.

M 1160

$59.95

DICK SMITH
ELECTRONICS
STEPDOWN
TRANSFORMER

**Also Available:**
**240-115V In-line Step-Down Transformer 24VA** M 1155 **$59.95**

## Step-Down Transformer 240-115V 50VA

Provides power for appliances where the load doesn't exceed 48 watt (0.42A) capacity. Plugs directly into mains.

M 1159

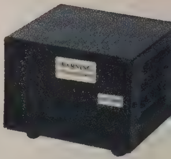
$99.95

## Step-Down Transformer 240V-115V 100VA

Compact stepdown transformer with US 3 pin socket suitable for small appliances using up to 100VA (0.87A at 110-115VAC).

M 1149

$159

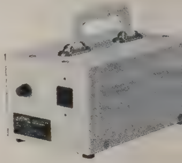


## Step-Down Transformer 240-115V 250VA

For more heavy-duty applications, this transformer has 2.17A (250W) capacity. Suitable for personal computers, small sound systems and other appliances that require high power. Includes non-slip feet and carry-handle.

M 1152

$199

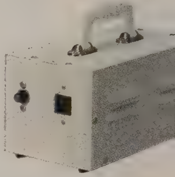


## Step-Down Transformer 240-115V 500VA

For larger applications requiring additional power. With a 500VA rating this transformer is good for up to 4.3 amps.

M 1153

$279

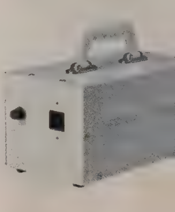


## Step-Down Transformer 240-115V 1000VA

For larger applications requiring additional power. With a 1000VA rating this transformer is good for up to 8.7A.

M 1154

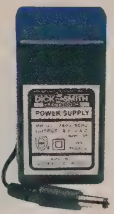
$475



## AC POWER SUPPLIES

### 9.3V AC @ 1 Amp

Ideal for some external modems, and certain computer speakers. Supplied with 2.1mm and 2.5mm plugs.
M 9653
**$32**

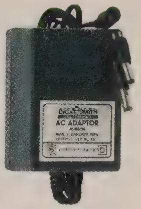


### 12V AC @ 500mA

Used for a wide range of cordless phones and many other household appliances. Supplied with 2.1mm plug.
M 9655
**$32**

### 12V AC @ 1 Amp

Supplied with 2.1mm and 2.5mm plugs.
M 9656
**$34.95**



### 16V AC @ 900mA

Ideal for alarm panels, small TVs, some answer machines or as a power supply for experimental work. Comes without plug (output) so you can fit the one that is appropriate for the appliance.
M 9667
**$39**

DICK SMITH
AC ADAPTOR

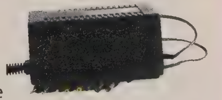
### 16V AC @ 1.5 Amp

A high power supply suitable for small TVs, keyboards, etc where power demands are heavy. It's double insulated for added safety. Supplied with 2.5mm plug.
M 9668
**$42**

DICK SMITH
PLUG-PACK
AC ADAPTOR
INPUT
OUTPUT

### 24V AC @ 1.5 Amp

An extremely useful power source. This inline power adaptor can provide 24V AC @ 1.5 Amps and is supplied with a multi-way output adaptor.
M 9635
**$55.40**



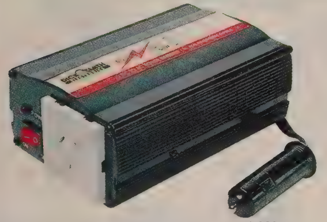
## INVERTERS

Inverters can be plugged into the lighter socket or directly into the battery terminals of your car, boat (or any 12V power source) to provide 230V AC power for most electrical equipment. Great for smaller televisions and VCRs, personal computers, small kitchen appliances and other 230V devices that you may want to use in remote locations. They all have electronic overload and temperature shutdown.

### TYPICAL WATTAGES AND BATTERY DRAIN FOR COMMON APPLIANCES

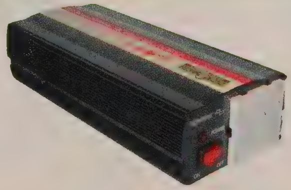
| Device | | Wattage | Battery Drain in Amps | Device | | Wattage | Battery Drain in Amps |
|---|---|---|---|---|---|---|---|
| Fridge | 370l | 750 | 69 | Hair Dryer | | 1000-1500 | 92-138 |
| Microwave | | 1400-2000 | 129-185 | VCR | | 20 | 2 |
| Washing Machine | | 400 | 37 | Jug | | 1800-2200 | 166-203 |
| Television | 14" | 70 | 6 | Computer | Desktop | 300 | 28 |
| | 21" | 120 | 11 | | Laptop | 150 | 14 |
| | 29" | 200 | 19 | Monitor | 15" | 400 | 37 |
| Stereo | Microsystem | 50 | 5 | | 17" | 560 | 52 |
| DVD Player | | 20 | 2 | Vacuum Cleaner | | 800-1400 | 74-129 |
| CD Player | | 20 | 2 | Light Bulb | 240V 100W | 100 | 9 |
| | | | | | 240V 75W | 75 | 7 |
| | | | | | 12V 20W | 20 | 2 |

Values shown are indicative only and will differ from device to device. Current requirements are commonly listed on appliances and these will give the best indication of the actual power required by the device. Certain appliances, such as microwaves and washing machines, can be sensitive to the waveform of the power. Battery Drain based on using an inverter with 90% efficiency.



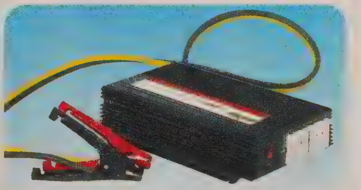
### Power Inverter 12V 150W

DC Input Voltage: 10-15 Volt (12V Nominal)
Output Frequency: 50Hz + 1%
Output Wave Form: Modified Sine wave
Output Power: 160W (surge) 150W (continuous)
AC Output Voltage: 100-240V AC
Low Battery Alarm: Below 10.5V DC
Weight: 700g
Efficiency: 90%
M 5100
**$168**



### Power Inverter 12V 300W

DC Input Voltage: 10-15Volt (12V Nominal)
Output Frequency: 50Hz + 1%
Output Wave Form: Modified Sine wave
Output Power: 310W (surge) 300W (continuous)
Weight: 900g
Dimensions (LxWxH): 232 x 104 x 58mm
Efficiency: 90%
Low Battery Alarm: Below 10.5V DC
M 5101
**$194**



### Power Inverter 12V 650W

DC Input Voltage: 10 - 15VDC (13.8V nom)
AC Output Voltage: 230V RMS
Output Waveform: 50Hz Modified Sinewave
Output Power: 1000W Surge
650W Continuous
Standby Current: <1.5A
Efficiency: 90%
Case Dimensions: 242 x 393 x 80mm (WLH)
Weight: 3.1 kg
M 5102
**$447**

# *Automotive Voltage Converters*

## 12V MULTI VOLTAGE CONVERTERS

### Multi-Voltage Adaptor 800mA

Simply plugs into a car cigarette lighter socket and allows you to switch voltages to run a large range of battery powered devices. Has selectable polarity and is supplied with an assortment of plugs. Output 1.5, 3, 4.5, 6V at 500mA, 7.5, 9, 12V at 800mA.
M 9683

**$29.95**

### Adaptor 1.5-12V DC @1.5A

Simply plugs into the car or boat cigarette lighter and allows you to switch voltage. Has a swivel neck to allow you to change the angle of the device for better convenience. Supplied with multi fit adaptors to suit your needs. 1.5, 3, 4.5, 6, 7.5, 9 & 12VDC @ 1.5A
M 9682

**$39.95**

### Adaptor 1.5-12V DC @2.0A Auto

1.5, 3, 4.5, 6, 7.5, 9, 12V @ 2A. Simply plug into your cigarette lighter and allows you to run a variety of appliances from your car. Supplied with an assortment of plugs.
M 9681

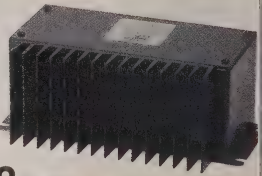
**$49.95**

## 24V TO 12V CONVERTERS

### Converter 24V DC To 12V DC 2A

Converts 24V to 12V DC with a 7 Amp surge. Gives 13.8V @ 2 Amps continuously with a 7 Amp surge rating. This sturdy regulated supply is ideal for running CBs and stereo systems in vehicles with a 24V system.
M 9813

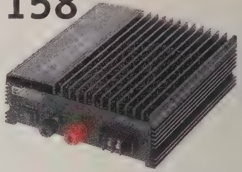
**$95**



### Converter 24V DC To 12V DC 8A

A rugged electronic voltage converter developed specifically for mobile radio applications in commercial and heavy vehicles with 24VDC systems. Provides 8 Amps continuous with a peak output of 10A at 12VDC.
M 9815

**$158**

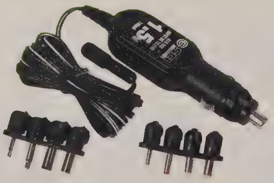


### 24/12V DC Converter @ 20 Amp

Converts 24 volts to 12 volts DC with a 25 Amp surge. Gives 13.8V @ 20 Amps DC continuously (25A surge rating) from a 24V supply. This sturdy regulated supply is ideal for running CBs and stereo systems in trucks with 24V systems (some caravan parks also supply 24V).
M 9814

**$194**

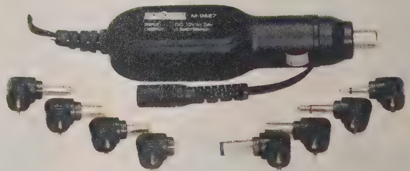
## 24V/12V AUTOMOTIVE VOLTAGE ADAPTORS



### Adaptor 24/12V-1.5V @0.7A Auto

Converts 24 Volt or 12 Volt input to 1.5V @ 0.7A. Allows for the unit to plug into cigarette lighters of cars and trucks that are 24 volts. Supplied with an assortment of plugs.
M 9690

**$28.60**



### Adaptor 24/12V-4.5V @0.7A Auto

Converts 24 Volt or 12 Volt input to 4.5V @ 0.7A. Allows for the unit to plug into cigarette lighters of cars and trucks that are 24 Volts. Supplied with an assortment of plugs.
M 9687

**$28.60**

### Adaptor 24/12V-6.0V @0.7A Auto

Converts 24 Volt or 12 Volt input to 6.0V @ 0.7A. Allows for the unit to plug into cigarette lighters of cars and trucks that are 24 Volts. Supplied with an assortment of plugs.
M 9688

**$28.60**

### Adaptor 24/12V-9.0V @0.7A Auto

Converts 24 Volt or 12 Volt input to 9.0V @ 0.7A. Allows for the unit to plug into cigarette lighters of cars and trucks that are 24 Volts. Supplied with an assortment of plugs.
M 9689

**$28.60**

## DOUBLE ADAPTORS

**Vertical Double Adaptor**

Great for tight spaces, this slimline adaptor projects only a small distance from the wall.

M 7109

$4.95

**Standard Double Adaptor**

Conventionally designed adaptor turns a single power outlet into a double.

M 7100

$4.95

**Slimline Double Adaptor - Left**

Projects to the left of the powerpoint, turning a single outlet into a double socket. Can be used in conjunction with the M 7107 righthand adaptor, giving four outlets.

M 7106

$4.95

**Slimline Double Adaptor - Right**

Projecting to the right of the powerpoint, this is ideal for limited spaces. Use together with the M 7106 lefthand adaptor to provide four outlets from a double powerpoint.

M 7107

$4.95

## NIGHT LIGHTS

**Auto Night Light**

Plugs into any powerpoint, and provides light for bedrooms, stairs and halls. Automatically switches on when the sun goes down and switches off at dawn to save electricity.

M 7526

$9.95

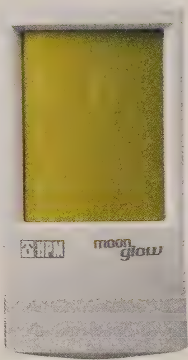
**Replacement Bulbs** S 3991 **$6.33**

**Moon Glow Night Light**

Use anywhere a night light is required. Provides a soft green glow to safely light hallways, stairs and bedrooms. Inexpensive to run - the advanced materials do not generate heat, and there are no globes to replace.

M 7240

$14.95



## POWERBOARDS

**4 Way Power Board**

4 way power board to allow connection of multiple plugs to a single power socket.

M 9908

$5.90

**4-Way Long Lead Power Board**

Long lead 1.8m. For all those awkward spots where the power-point is out of reach.

M 7263

$9.95

**4-Way Vertical Mains Power Board**

Four-outlet power board allows up to four appliances to operate simultaneously. Features overload protection switch. With a 1 metre cord.

M 7119

$9.95

**4-Way Switched Power Board**

4 individually switched power outlets on a tidy 4-way board. Rated 10 Amps.

M 7133

$51.60

**6 Way Powerboard**

A versatile 6 way powerboard ideal for around the home or in the workshop. 1m cord, with overload cut out.

M 7128

$9.90

**8-Way Mains Power Board**

Changes a single powerpoint into eight outlets and features overload protection. With a 1-metre cord.

M 7118

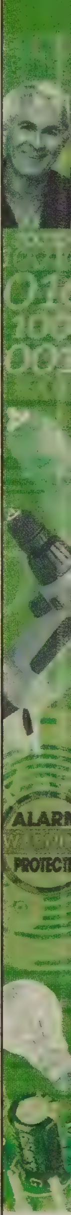
$39.95

**12-Way Mains Power Board**

Changes a single powerpoint into 12 outlets with overload protection. With a 1-metre cord.

M 7120

$61.20

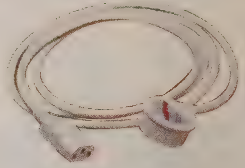


### HPM Surge Double Adaptor with Buzzer

SurgeAlert
Audible – Visible Alarm

Single MOV protection for two devices with an audible and visual indication of damaging spikes and surges.
M 7149 **$19.95**

### HPM IEC Surge Protection Lead



Convenient single MOV Surge/Spike protection in a standard IEC lead suitable for computers and printers etc. Rated 10 Amps.
M 7166 **$24.20**

### ARLEC 4 Way Surge Mains Power Board

Protect your electronic equipment from damaging power surges and voltage spikes. Comes with an overload protection circuit breaker. Specifications: Input: 240v, 50Hz (max 10 amps); Surge Capacity: to 4,500 amps; Max Continual Voltage: 275 VAC; Reaction Time: Less than 25nsec; Clamping Voltage: 710 volts.
M 7164 **$29.95**

POWER SURGE PROTECTOR

### ARLEC 6 Way Surge Mains Power Board

Protect your electronic equipment from damaging power surges and voltage spikes. Specifications: Fast 25 nanosecond reaction time against voltage spikes. 230-240V 10Amp rating (2400 watts max). Input: 230-240V AC, 50Hz, max 10 Amp. Clamping voltage: 710V Surge capacity: to 4,500Amp. Overload protection circuit breaker which will shut off in the event of overloading.
M 7184 **$39.95**

### HPM 4-Way Surge Switch Board

This surge board with four individually switched power outlets helps protect valuable electronic appliances from momentary high-voltage surges caused by indirect lightning strikes. Features visual protection status indication.
M 7165 **$72.30**

TELEGUARD SURGEBOARD

### HPM 6 Way Powerboard with Power/Telecom Protector

A versatile six way mains surge/spike and telephone line protector, ideal for protecting electronic equipment such as faxes, phones and modems. Clamping Voltage 775V @ 50A, Energy absorption 149.8 joules less than 20 nanoseconds.
M 7172 **$74**

## 'PRESTIGE PROTECTION' Extended Warranty

Dick Smith Electronics are able to offer extended warranty plans on a wide range of products to ensure your investment is thoroughly protected. Our sales staff are fully trained to offer advice as to which warranty option is best for you – ask instore when you make your next purchase.
As well as our regular extended warranties, we also offer these bundle packs that included surge protection devices to provide additional protection for your new purchase.

### Prestige Protection 2-Year Extended Warranty

This extended warranty service protects your electronic equipment (excluding computers) for a futher 2 years once the manufacturers warranty has ended. Ideal for electronic equipment up to the retail value of $700. Includes a single outlet surge/spike protector.
M 9955 **$69.95**

### Prestige Protection Deluxe 2-Year Extended Warranty

This extended warranty service protects your Computer for a further 2 years once the manufacturers warranty has ended. Ideal for Computers up to the retail value of $4000. Includes a 4-Way surge/spike protection power board.
M 9950 **$199.95**

# Power safe protection plan

The Zapcatcher range of products are produced by a New Zealand company that specialises in power protection for New Zealand conditions. Its range of power protection products have been specifically designed to provide effective protection against the most troublesome and prevalent forms of power disturbance found on your AC mains power supply. These disturbances, Surges, Spikes, EMI & RFI electrical noise (Transient spikes), Power failures and Brown outs have been linked directly to computer and electronic malfunctions such as Read/Write errors, Hardware component failure, Memory loss, Corrupt files, System Crashes and lost data. For long term reliability and immediate protection we recommend you consider the protection these products can offer you.

new for 2002

**Zap Catcher 16**

Ideally suited for home PCs and other electronic equipment around the home, the Zapcatcher 16 offers surge and spike protection, RF noise suppression and overcurrent protection. Features a strike indicator to warn against damage to the unit and comes with a full copy of PC-Cillin 2000 anti-virus software.

| | |
|---|---|
| • Peak Surge: | 16,000A |
| • Max. Energy Dissipation: | 404 Joule |
| • Peak Clamping Voltage: | 275V AC |
| • Response time: | 1-3 nanoseconds |
| • Noise Attenuation: | min 30dB (2MHz) |

M 7245

**$69**

new for 2002

**Zap Catcher 20**

Advanced AC power protection suitable for home/office applications and built-in protection against surges and spikes for one phone line. 20,000A peak surge current, RF noise suppression and overcurrent protection plus a strike indicator to warn if the unit has been damaged. Comes complete with a full copy of PC-Cillin 2000 anti-virus software and a telephone patch lead.

| | |
|---|---|
| • Peak Surge: | 20,000A |
| • Max. Energy Dissipation: | 540 Joule |
| • Peak Clamping Voltage: | 275V AC |
| • Response time: | 1-3 nanoseconds |
| • Noise Attenuation: | min 30dB (2MHz) |
| • Telephone Line Protection: | 1 line/1 outlet (RJ12) |

M 7246

**$99**

new for 2002

**Zap Catcher 27**

Premium grade AC power surge reduction fitted with a high performance balanced toroidal inductor/capacitor network to produce clean AC power, the Zapcatcher 27 also features phone line protection for two devices on a single line. Features a strike indicator to warn if the unit has been damaged. Comes complete with a full copy of PC-Cillin 2000 anti-virus software and telephone lead.

| | |
|---|---|
| • Peak Surge: | 27,000A |
| • Max. Energy Dissipation: | 765 Joule |
| • Peak Clamping Voltage: | 275V AC |
| • Response time: | 1-3 nanoseconds |
| • Noise Attenuation: | min 40dB (2MHz) |
| • Telephone Line Protection: | 1 line/2 outlet (RJ12) |

M 7247

**$139**

new for 2002

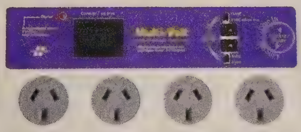
**Zap Catcher 39**

High performance surge protection for use on essential business computer equipment or high end home PCs where clean AC power is of prime importance. The board features an earth wiring fault indicator in addition to a strike warning indicator. It is capable of providing phone line protection for two independent phone lines plus 40dB AC noise reduction to protect against EMI/RFI interference. Comes complete with a full copy of PC-Cillin 2000 anti-virus software and two telephone patch leads.

| | |
|---|---|
| • Peak Surge: | 39,000A |
| • Max. Energy Dissipation: | 1265 Joule |
| • Peak Clamping Voltage: | 275V AC |
| • Response time: | 1-3 nanoseconds |
| • Noise Attenuation: | min 40dB (2MHz) |
| • Telephone Line Protection: | 2 line/3 outlet (RJ12) |

M 7248

**$159**



### MultiVolt Power Board

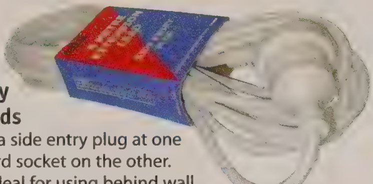
Run your computer and peripherals from one compact package. Provides surge/ spike protection through 4 power outlets, one IEC dedicated computer power point, 2 low voltage regulated DC power supplies (12V or 9V and 9V or 6V) and a surge protected internet telecom line.

| | |
|---|---|
| • AC Power Outlets | |
| • Protection: | MOV, Delta P/N/E |
| • Peak Surge: | 9kA |
| • Clamping Voltage: | 275V RMS |
| • DC Power Outlets | |
| • Voltage Output A: | 12V / 9V DC +/- 6% |
| • Voltage Output B: | 9V / 6V DC +/- 6% |
| • Current Output: | 900mA combined, 400mA max output A |

M 7269

**$149**

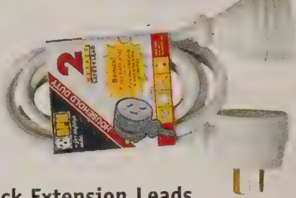
## EXTENSION LEADS



### Elto Side Entry Extension Leads

These leads have a side entry plug at one end and a standard socket on the other. 240V, 10A rated. Ideal for using behind wall units, sideboards or other hard to reach wall sockets.

| | | | | | |
|---|---|---|---|---|---|
| **2 metre** | M 7351 | **$10.80** | **7 metre** | M 7354 | **$16.80** |
| **3 metre** | M 7352 | **$12.80** | **10 metre** | M 7355 | **$19.80** |
| **5 metre** | M 7353 | **$14.80** | | | |



**HPM**

### Piggy Back Extension Leads

These leads have a piggy back adaptor plug at one end and a standard socket on the other. 240V, 10A rated.

| | | | | | |
|---|---|---|---|---|---|
| **1 metre** | M 7080 | **$9.95** | **6 metre** | M 7083 | **$22.95** |
| **2 metre** | M 7081 | **$12.95** | **10 metre** | M 7084 | **$28.95** |
| **4 metre** | M 7082 | **$16.95** | | | |

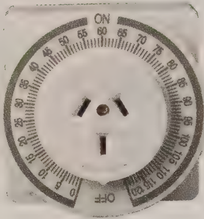
## TIMERS

**ARLEC**

### Countdown Timer

Ideal for portable heaters, bedside lamps and hot blankets. Can be used as a set and sleep function. This unique addition to the timer range, when set, leaves the appliance "On" for the desired period of time and automatically switches "Off" after predetermined time has been met. 0 to 120 mins. Rated at 240Volt and 10Amp.
M 7219

**$14.95**

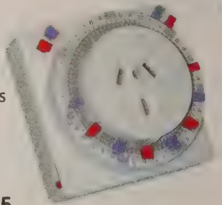


new for 2002

### Elto 7 Day Mains Power Timer

Ideal for home security and energy saving applications. Allows you to switch appliances on/off up to 12 times every 7 days. Comes with 12 pins allowing 4 hour interval settings with manual override switch. 240V, 10Amp, max load of 2400Watts.
M 7229

**$24.95**

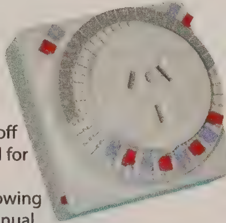


new for 2002

### Elto 24Hr Analogue Mains Timer

Allows you to switch appliances on/off up to 6 times in every 24 hours. Ideal for home security and energy saving applications. Comes with 12 pins allowing 30 minutes interval settings with manual override switch. 240V, 10Amp, max load of 2400Watts.
M 7228

**$19.95**



new for 2002

**HPM**

### 7-day Digital Timer

The ideal security timer for turning lights, radio, TV "on" and "off" automatically. Seven day, 24 hour clock, up to 6 on/off cycles per day (repeating for 7 days). Override switch for normal switching. 240V, 10Amp. Battery NiMH 1.2V Rechargeable Max Load – 2400Watt. Built in rechargeable memory battery.
M 7226

**$39.95**

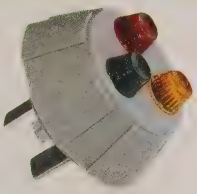
## SAFETY PRODUCTS

**First Alert**

### Power Outlet Safety Plugs

Innovative "Pinch Grip" design makes these plugs easy for adults to use and difficult for children to remove. Keeps children safe from dangerous 240V electrical outlets/ power points. Comes in a pack of 12.
L 5656

**$4.80**



**click**

### Mains Power Point Safety Tester

Just pop it into the power point and the light pattern reveals faults without the danger of shorts or accidents. 240V rated.
M 7103

**$14.95**

new for 2002

**HPM**

### Heavy Duty RCD Safety Switch and Cord

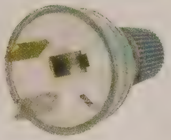
Prevents electrocution by cutting off the power within 30ms in the event of a fault to earth and ensuring the power stays off until you hit the reset button. 2 metre cord length.
M 7279

**$58.70**

## MAINS CONNECTORS

HPM

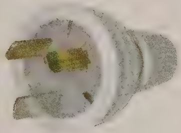
**3-Pin Plug – Clear**



10 amp, 3 pin plugs. With collar to hold cable.
M 7002
$5 95

HPM

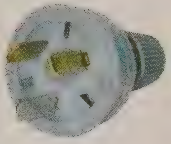
**3-Pin Plug – White**



10 amp, 3 pin plugs with collar to hold cable.
M 7000
$5 95

HPM

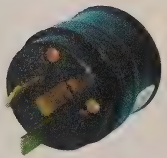
**3-Pin Plug – Grey**



10 amp, 3 pin plugs with collar to hold cable.
M 7007
$6 60

HPM

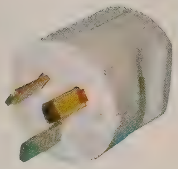
**Heavy Duty Mains Power Plug**



10 amp, 3-pin plug with cord entry at rear.
M 7001
$9 30

HPM

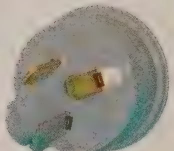
**Back Entry 3-Pin Plug**



230V 10-amp rated back entry 3 pin plug.
M 7459
$6 50

HPM

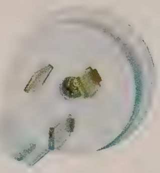
**Side Entry 3-Pin Plug – Grey**



10 amp, 3-pin plug with cord entry at side.
M 7006
$6 70

HPM

**3-Pin Side Entry Plug – White**



10 amp, 3 pin side entry plug. Flush fitting, ideal for behind furniture.
M 7013
$6 45

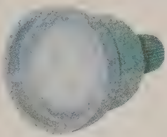
PDL

**Piggy Back Mains Power Plug**

White 240V 10A rated plug allows two cords to be run from the same power point.
M 7008
$9 20

HPM

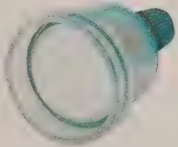
**3-Pin Socket – Grey**



10 amp, 3 pin line line socket with collar to hold cable.
M 7019
$8 30

HPM

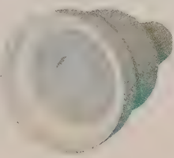
**3-Pin Socket – Clear**



10-amp, 3-pin line socket for extension cords etc.
M 7022
$8 30

HPM

**3-Pin Socket – White**



10 amp, 3 pin line line socket with collar to hold cable.
M 7018
$8 30

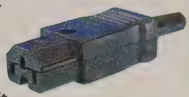
HPM

**Mains Power Surface Socket**

Standard 3-pin surface mount socket. Rated at 10 amps. White finish.
M 7030
$13 50

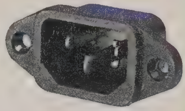
## IEC CONNECTORS

**Mains Power IEC Female Line Connector**



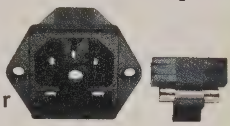
3-pin socket to suit 3-pin IEC plugs as used on computer equipment etc. Rated at 10 amps.
M 7060
$8 20

**Mains Power IEC Male Chassis Connector**



Suitable for flush mounting on computer, hi-fi equipment etc. Accepts IEC line socket. Rated at 10 amps.
M 7066
$4 95

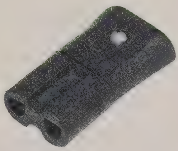
**IEC Male Chassis Connector 10A**



Flush mount IEC connector with inbuilt fuse holder. Rated 10 Amps.
M 7068
$6 30

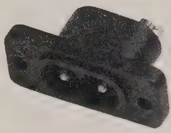
## KEY WAY CONNECTORS

**Dual Keyway AC Socket**



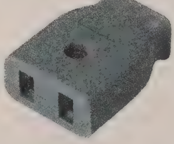
2 pin AC dual keyway.
M 7417
$1 25

**Figure 8 Male Chassis Connector**



Rated for 230V, 2.5A.
M 7098
$2 75

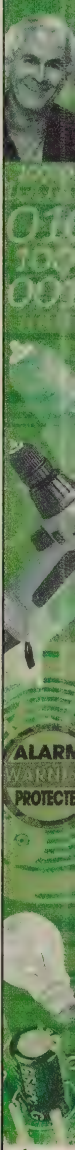
**2-Pin AC Flat Socket**



Grey flat 2 pin 240VAC socket, suits M 7416
M 7419
$3 95

**2-Pin AC Flat Plug**

Grey flat 2 pin 240VAC plug, similar to American plug type.
M 7416
$4 25



## Wallplates and Switches

**HPM**

### Mains Single Powerpoint - Horizontal

Wall mounted single power point rated 240V, 10A.

M 7012 $\$16^{20}$

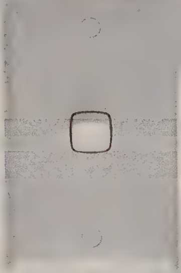
**HPM**

### Mains Single Powerpoint - Vertical

Wall mounted single power point rated 240V, 10A.

M 7494 $\$17^{40}$

### Single Wall Mains Light Switch

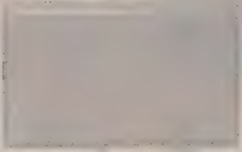


Standard wall fitting with a single light switch.

M 7036 $\$11^{95}$

**HPM**

### Mains Wall Plate



Blanking plate for standard wall fitting.

M 7046 $\$6^{95}$

**HPM**

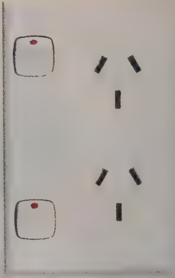
### Mains Double Horizontal Powerpoint

Standard wall-mount double powerpoint with two switches. Rated at 10A 240V. White finish.

M 7032 $\$25^{90}$

**HPM**

### Mains Double Vertical Powerpoint

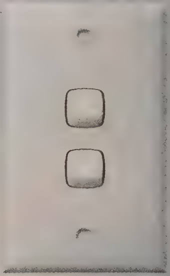


Double wall mounted power point. 240V 10A.

M 7498 $\$25^{50}$

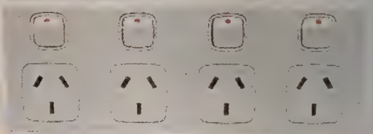
**HPM**

### Double Wall Switch White



Standard wall fitting with two switches.

M 7037 $\$17^{90}$



**HPM**

### Mains 4-in-1 Power Point

Four horizontally positioned power points. Great for replacing existing powerpoints where one or two are not enough.

M 7011

$\$55^{50}$

**ARLEC**

### 400W Light Dimmer with Wallplate

With a total rating 240 volts (400 watts), this light dimmer complies with electromagnetic compatibility (EMC) requirements and is supplied complete with a switch, architrave and wall plates, plus mounting hardware.

M 7089 $\$34^{50}$

HPM

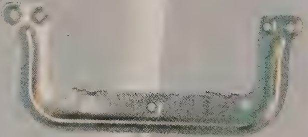
### Surface Mounting Block Shallow

For wall mount powerpoints, switches, etc., where flush mounting is not possible.
M 7045 **$6.70**

HPM

### Mains Light Switch Wall Board Clip

Allows flush mounting of wall plate switches, powerpoints etc on cavity walls e.g. plaster, timber (not brick).
M 7040 **$4.95**



### Cord Line Switch

This conventional white switch may be wired into the lead of either three-core cable or figure-eight two-wire cable. Rated at 2 amps.
M 7756 **$9.95**

HPM

### Mains Cord Grip Bayonet Safety Lamp Holder

Bayonet fitting Cord grip Lamp holder.
M 7026 **$8.30**

HPM

### Mains Batten Mount Bayonet Lamp Holder

Batten mount for standard Bayonet Cap globes. Fixed position.
M 7029 **$12.40**

HPM

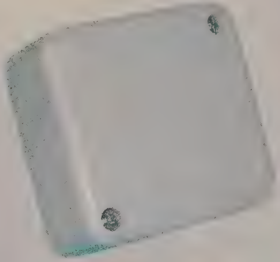
### Surface Mounting Block Standard

For wall mount powerpoints, switches etc., where flush mounting is not possible. Suits standard wall plate switches etc.
M 7042 **$8.70**

HPM

### Mains Power 4-Way Junction Box

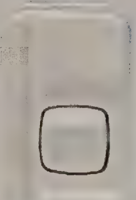
4-way plastic junction box (40A/415V) with screw-down cover.
M 7048 **$11.20**



HPM

### Mains Power Line Switch

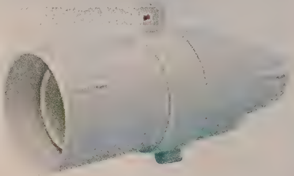
Ideal for standard lamps etc. Simply wires into power cord. Rated at 10 amps.
M 7056 **$13.95**



HPM

### Mains Cord Lamp Holder with Switch

Standard bayonet lamp holder suits 10 amp cord. With push-bar switch.
M 7027 **$16.20**



HPM

### Fuse Wire

A handy pack of fuse wire for use in mains fuse boxes. Three different sizes are provided.

**5, 10 15A**
H 3182

**8A, 16A, 20A, 30A**
W 3180 **$2.50 ea**

BRITE-HEAT
FUSE WIRE
HPM
FUSE WIRE
HOUSEHOLDERS PACK
5 AMP
10 AMP
15 AMP

# Alarm Systems

new for 2002

## ARLEC Home Security Kit

The AM400 hard-wired security system is designed for the home or small business and helps to keep families and possessions secure. The alarm secures doors and windows, detects movement in and around your home and has a convenient keypad control with a programmable security code. Loud 110dB siren output. 8 sec entry delay, 30 sec exit delay. Armed and disarmed indication. Low battery indication. Package includes main control unit with optional battery back-up, 2 x PIR detectors, 2 x reed switches, external siren, power adaptor and instructions.

L 5745 **$169**

ARLEC
WARNING

new for 2002

## ARLEC Wireless Alarm Kit

The AM500 is a wireless remote controlled security system designed for the home or small business. helps to keep families safe and possessions secure. Loud 100dB siren output. 8 sec entry delay and 30 second exit delay. Low battery indicator. Package includes control panel with inbuilt Piezo Siren, (requires 3xAA batteries – no supplied), 2 x Wireless PIR Dectectors (require 9V battery each – not supplied), 1 x Wireless Reed Switch (requires 12V battery – supplied), AC Adaptor, 2 x Warning Stickers and Instruction Manual.

L 5746 **$197**

ARLEC
WARNING
WARNING

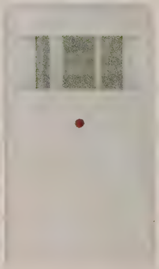
## ALARM ACCESSORIES

new for 2002

### ARLEC Wireless Reed Switch

The main control panel is also alerted and triggers the alarm. Powered by 1 x 12V A23 battery (supplied). Includes mounting accessories and screws for easy installation. Accessory for the Arlec Wireless Home Security Alarm (AM500).

L 5748 **$48**



new for 2002

### ARLEC Wireless PIR

The sensor detects movement within a 8m range and a 120° arc. Includes brackets, accessories, screws. Requires 1 x 9V battery (not supplied). Accessory for the Arlec Wireless Home Security Alarm (AM500).

L 5747 **$58**

new for 2002

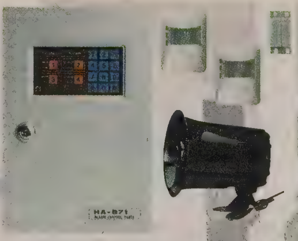
### ARLEC Extension Siren

Features easy do-it-yourself installation, and sounds a 110dB piezo siren. Requires 4 x AA batteries. Accessory for the Arlec Wireless Home Security Alarm (AM500) and the Arlec Wired Home Security Alarm (AM400) as an outdoor siren.

L 5749 **$23.70**

## ALARM SYSTEMS

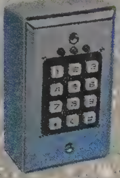
### Deluxe Digital Home Security System



A versatile alarm designed for commercial and residential security systems. Features a digital access control panel that uses a user selectable 4-digit PIN code to control the system. The control panel has 4 programmable zones, allowing you to disable the alarm in any area of your home while leaving the other sectors armed. Package includes a quality 4-zone control panel, 2 x PIR mini detectors, 1 x external horn siren, 1 x panic emergency button, 5 x magnetic reed switches, 1x power adaptor, 50m of 4 core alarm cable. You can install it yourself with the comprehensive easy-to-follow instructions supplied.

L 5149 **$348**

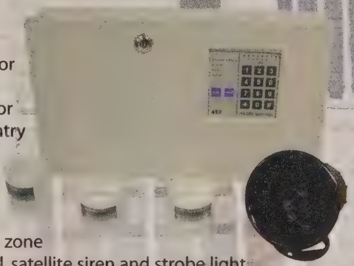
### Digital Access Keypad



Dual output digital access control keypad designed for door strike and security alarm systems. Over 100 million combinations are possible for the user codes and master code.

L 5288 **$72**

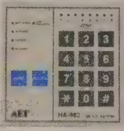
### 8 Zone Alarm System



This great quality alarm system includes all the latest features. 8 zones, programmable for instant, delay 1 or 2, or 24 hour instant alarm reporting. Programmable master code, client code and 8 user codes. Programmable time for exit delay, entry delay 1, 2 and alarm duration. Exit and entry beep enable-disable option. Instant arming codes for home and away operation. Built-in dynamic battery charger and tester. On board activation of panic. System is able to take up to 3 additional remote keypads. Store the commonly isolated zones in memory or manually set zone isolation (Home Mode). Connection facilities for siren/bell, satellite siren and strobe light. Power low watchdog resets the system before the battery is exhausted. Factory set full feature default values for ready use. Tamper protection. Optional 12V 6.5ah backup battery (not included).

L 5189 **$497**

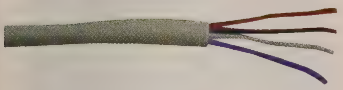
### Remote Keypad



A remote keypad for the L5189 Zone Alarm System giving independent access to the alarm control panel. With a low profile, slim housing, this unit features tamper protection and a built-in panic button giving you more personal safety.

L 5289 **$72**

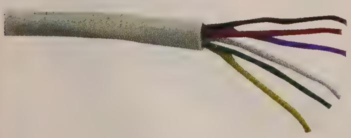
## ALARM CABLE



### 4 Core Tinned Security Cable

Conductors: 4 cores of 7 x 0.20mm tinned copper. Insulation: White PVC, metre marked. Nominal Overall Diameter: 4.0m.

W 9910 **95¢/m**



### 6 Core Tinned Security Cable

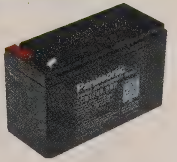
Conductors: 6 cores of 7 x 0.20mm tinned copper. Insulation: White PVC, metre marked. Nominal Overall Diameter: 5.2m.

W 9915 **$1.35/m**

## ALARM BATTERIES

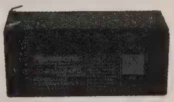
### Rechargeable Battery LCR12V 6.5Ah

S 7369 **$80.20**



### Rechargeable Battery LCR12V 3.4Ah

S 7366 **$74.85**



**Panasonic**

### Alkaline Battery 12V GP23A

S 7423 **$7.45**

Alkaline
Panasonic

**Panasonic**

### Alkaline Battery 9 Volt Square

S 7230 **$7.60**

Panasonic
ALKALINE

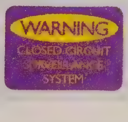
## WARNING STICKERS

new for 2002

### CCTV Warning Sticker

Size: 70mm x 50mm.

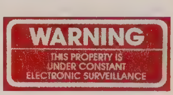
L 5316 **$4.95**



### Alarm Deterrent House Sticker

Size: 130 x 70mm.

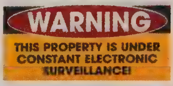
L 5311 **$4.95**



### Alarm Warning Property Sticker

Size: 130 x 70mm.

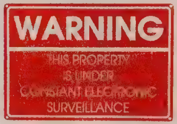
L 5314 **$4.95**



### Aluminium Alarm Deterrent Sign

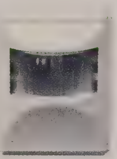
Size: 245 x 270mm.

L 5312 **$14.95**



# Alarm Accessories

## PASSIVE INFRARED DETECTORS



### Mini PIR 9038W Detector

12x12m @ 90° range. Single-shot or pulse count selectable. With dual element pyro-electric sensor, radio frequency interference filter. As used in the L-5149 and L-5189 alarm packages.
L 5018
**$54**

### Ness "Ten+" PIR Detector

Exceptionally reliable, automatic temperature compensation, special downward anti-creep zone lens and adjustable sensitivity are all standard features of the TEN+ detector.
L 5021
**$75**

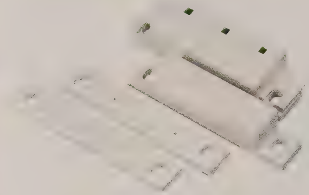
### Ness Quantum 360 PIR Detector

2.4 x 8m @ 360 degree range.
Provides coverage up to 8m when installed on a standard 2.4m ceiling. Features 33 Dual element detection zones, relay output, tamper contacts and is pulse count and sensitivity selectable. Size: 30.4 x 102mm.
L 5022
**$75**

### Ness Quantum Dual PIR Detector

15 x 15m (wide angle) range.
Features a combined microwave & dual element PIR detector, tamper output and alarm relay output. The PIR zones have 20 dual layers plus 2 creep zones. Size: 50 x 70 x 123mm.
L 5023
**$129**

## ALARM SWITCHES

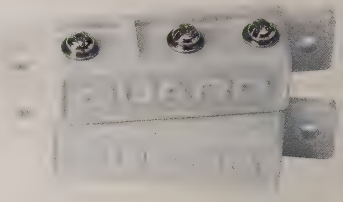


### Surface Mount Reed Switch

Normally closed reed switch set that includes switch, magnet, 2 x spacer plate and screws. Rated 100 Volt AC/DC @ 1A.
L 5242
**$6.40**

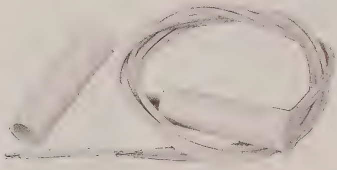
### Normally Open Reed Switch Set

Normally open (N.O) magnetic reed switch set. Rated 30V DC @ 300mA.
L 5240
**$8.90**



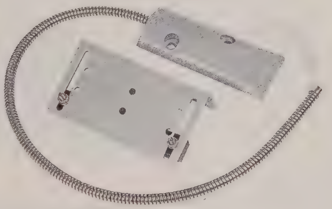
### Alarm Reed Switch

Magnetic Reed Switch with both normally open and normally closed contacts. Easy to mount. Rated 100V AC/DC @ 500mA
L 5211
**$9.40**



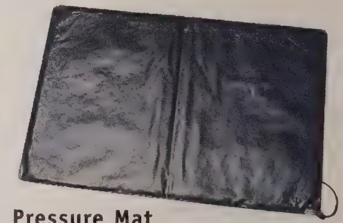
### Concealed Reed Switch

Undetectable when recessed in doors or windows. Normally Closed. Rated 100 volt AC/DC @ 1A.
L 5243
**$8.30**



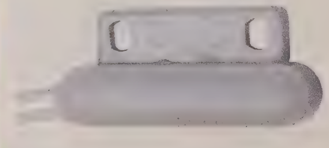
### Garage Door Reed Switch

Normally closed (N.C) reed switch designed for garage doors. Features 45cm armoured cable, adjustable 'L' magnet. Rated 100 Volt AC/DC @ 1A.
L 5260
**$21.60**



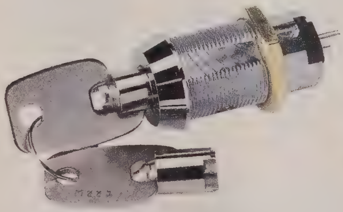
### Pressure Mat

Almost impossible to detect under carpets or rugs! Normally open (N.O.) pressure mat with 700mm of cable attached. Mat size: 790 x 540mm. Rated 30 volts DC at 1 amp.
L 5270
**$38**



### Mercury Tilt Alarm Switch

Activated when tilted more than 15 degrees. Great for use on motorbikes.
L 5241
**$6.80**



### Mini Standard Barrel Switch

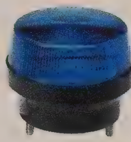
Includes 2 keys for switching home and car alarms. Dimensions: 30.5 x 15mm. Hole Size: 12mm. Rated 125 Volt DC @ 1 Amp
L 5295
**$9.95**

### Large Standard Barrel Switch

Includes 2 keys for switching home and car alarms. Dimensions: 50 x 24mm. Hole Size: 19mm. Rated 125 Volt DC @ 1 Amp
L 5290
**$9.95**

## STROBE LIGHTS

### Mini Strobe Blue

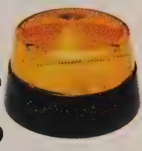


65mm diameter, 12V DC (150mA). Flash rate: 75/minute.

L 6002

$32

### Mini Strobe Yellow



75mm diameter x 45mm high. 12V DC (180mA) Flash rate: 90/minute.

L 6003

$32

### Strobe Lights

Can be mounted outside.

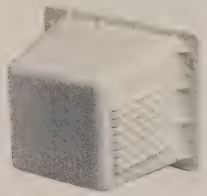
95mm diameter. 12V DC (180mA). Flash rate: over 90/minute.

Blue L 6000; Amber L 6006

$39.95

## SIREN COVERS

### Plastic Siren Cover



Plastic Siren Cover made out of Hi-Density UV-Proof Polypropylene.

L 5305

$28.30

### Metal Siren Cover Mk2

Made from heavy-duty steel with a powder-coated finish. Features pre-drilled mounting holes for most strobe lights. Includes a tamper switch.

L 5302

$36

## SIRENS & BUZZERS

### 4" Horn Speaker

Features an 8 Watt output, 8 Ohm impedance and weighs only 450 Grams.

L 7040

$30.50

### Siren 10.2cm (4") ABS

Sounds an ear-piercing 120dB siren. 12V DC (1.15A). Size: 102mm (dia.) x 113mm(l).

L 7034

$30.50

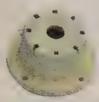
### Micro Piezo Siren

With adjustable bracket. 12V DC (250mA) Output: 100dB.

L 7029

$20.50

### Indoor Siren



7.5-15V (200mA) Output: 105dB Size: 85mm (diam.) x 43mm.

L 7025

$26.20

### Flush Mount Internal Siren

Great for home alarm systems. 12V DC (250mA). Output: 108dB. Size: 75mm (dia.).

L 7031

$26.80

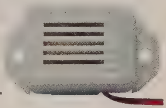
### 2-Tone Piezo

In-built driver. 9-12V DC (40-50mA). Output: 94dB. Size: 40mm (dia.) x 23mm. Mounting holes: 46mm.

L 7027

$13.10

### Electronic Buzzer

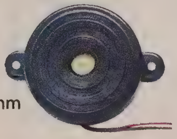


4-15V DC (15mA). Output: 70dB Size: 23(l) x 17(w) x 16mm(h). Mounting holes 26mm.

L 7009

$5.60

### Slim Piezo Alarm



In-built driver. 3-30V DC (2.5-19mA). Output: 90dB Size: 17mm (dia.) x 14mm high.

L 7024

$8.10

### Piezo Buzzer 2-Tone

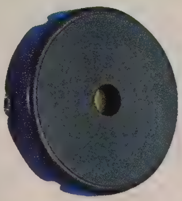
Single tone or pulse 2-tone. Frequency: 3.5kHz, 6-16VDC (15mA) Output: 90dB.

L 7019

$10.70

## PIEZO TRANSDUCERS

### Piezo PCB Mount



Operating voltage (30Vp-p Max), sound pressure level @ 10cm/10Vp-p, square wave 92dB @ 40kHz/10Vp-p, square wave 11mA, capacitance @ 1kHz/1V 25,000pF (+/- 30%). Size: 22.1mm x 6.3mm.

L 7021* *Limited Stock

$2.40

### Piezo Transducer

5mm high x 30mm diameter. 3-30V p-p AC. Approx 80dB SPL @ 1m. Centre frequency: 4.5kHz +/- 0.5kHz.

L 7022

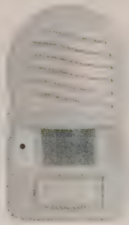
$4.60

## 2-in-1 PIR Alarm/Chime

Movement activated sensor that sounds an alarm or chime! It monitors a 6m range in a 90° arc and comes with an adjustable wall-mounting bracket. Features DC power socket for optional 6 Volt 300mA power adaptor. Loud 90dB siren. Requires 4 x "AA" batteries (not included).

L 7223

**$48**

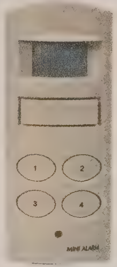


## Intruder PIR Alarm with Keypad

Designed for easy do-it-yourself installation. Movement automatically triggers this reliable alarm, sounding an ultra-loud 130dB siren. Monitors a 7m range in 60° arc. Features easy to program 4-digit personal code, automatic reset, 30 second exit delay, 10 second entry delay and a low battery indicator. Requires 4 x AA batteries (not supplied).

L 5061

**$49.95**

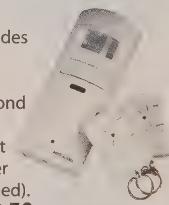


## Mini PIR Alarm with 2 Remotes

Movement automatically triggers this reliable alarm, sounding an ultra-loud 130dB siren. Monitors a 7m range in 60 (degree) arc. Includes two infrared remote controls with 16 codes (programmable via DIP switches). Features automatic reset, 30 second exit delay, 30 second entry delay, siren duration 30 seconds, low battery indicator, and a DC Power Socket that requires an optional 4.8V DC @ 450mA power supply. Requires 4 x 'AA' batteries (not supplied).

L 7228

**$68.70**



## External 130dB Siren

An optional external siren that simply plugs into the L 5061 Intruder Alarm or the L 7228 Mini PIR Alarm. Supplied with 10m of cable. Features an anti-tamper device that will instantly sound the siren if the lead to the main unit is broken. High output 130dB siren and a low battery indicator. Requires 4 x AA batteries (not supplied).

L 5064

**$32.50**

## Strobe Alarm MK3

Great for home, office or garage, designed for indoor use. Features a sensor that detects any intruder. It includes a powerful flashing strobe light, loud 130dB siren, remote control, adjustable bracket and warning sticker. Requires 1 x 9V and 4 x AA batteries (not supplied) or a DC power adaptor.

L 7227

**$89**

## 360° PIR Ceiling Alarm

Includes 2 x infra-red remote controls for arm, disarm and panic options. The 360° passive infra-red motion sensor detects movement and activates the alarm. Features a high output 105dB siren and a programmable security code (4 selectable channels). Requires 1 x 9 Volt batteries (not included).

L 7225

**$64.95**

## Water Level Alarm

Perfect for setting the required water level in a bath, pool or tub. Sounds an alarm to let you know when the water level is at the desired level. Water resistant unit with suction caps for convenient and easy installation. Requires 2 x 1.5 volt button cell batteries (included).

L 7222

**$14.80**

## Personal Metal Detector

Quick detection with audio and visual indication. Features adjustable detection control, power ON/OFF, low battery indication and adjustable detection sensitivity. Requires a 9 Volt battery (not included).

L 8400

**$35.20**

## HOME SAFE

### Anti-Theft Electronic Safe

An affordable anti theft safe, that can be programmed with any 3 to 8 digit code. Includes backup battery and manual override key system, mounting bolts and instruction manual. Requires 4 x 'D' size batteries (supplied). Size: 340 x 200 x 240mm, Weight: 18kgs, Door Thickness: 6mm, Body Thickness: 3mm. NOTE: This safe is NOT fire resistant.

L 8600

**$196**

## DOOR/ENTRY SECURITY

### Pressure Mat Alarm/Chime

Perfect for shop or storeroom doorways. Mount this pressure mat on the floor nearest the door or entrance to be protected. When stepped on the chime unit will sound a selectable welcome chime or 30 second warning alarm. The chime unit is on a 10m cable for mounting flexibility. Mat size: 39 x 63cm.

L 7221

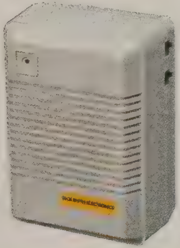
**$39.30**

### Security Door Chime

Ideal for use on shop doorways! Activates when someone walks past it. Range of around 5m. The door chime operates under normal indoor light conditions. Features 3 selectable operating modes (ding-dong chime, melody or alarm). Requires 2 x "C" batteries (not included).

L 7220

**$49.95**



### Security Door Beam & Chime

Exclusive to Dick Smith Electronics, this passive infrared door beam is easy to install. Features alarm/chime/off modes, adjustable 'ON' time for the chime and siren, adjustable volume control. Package includes door beam, siren/chime unit with volume control, 10m cable, power adaptor, beam reflector and mounting brackets. It has a range of 7m and is ideal for use on shop fronts, store rooms etc.

L 5905

**$169**

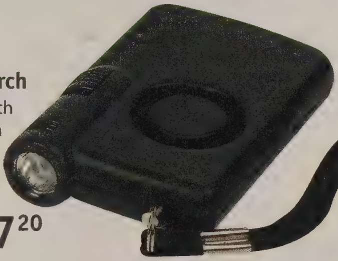
## PERSONAL SECURITY

### Personal Alarm/Torch

Slim personal alarm with spotlight torch. Pull-pin activation. Requires 2 x 'AAA' batteries (not included).

L 7200

**$17.20**



### Personal Alarm/Torch

Personal body alarm with pull-pin activation. Loud siren approx 110dB. Features a torch and flashing red LED warning light. Unit also includes a door/window switch that can activate the siren if a door or window is opened (great for travellers). Requires 1 x 9V battery (not included).

L 7201

**$19.95**

### Big Shock Personal Alarm

You'll feel so much safer with this alarm attached to your purse or brief case! If you ever feel threatened, simply pull the cord to sound an attention-getting 110dB siren. Also features a test button. Includes five LR44 batteries.

L 5172

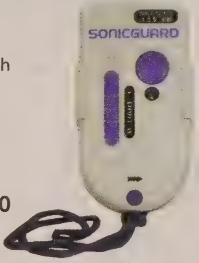
**$21.50**

### Sonicguard Personal Alarm

This personal alarm with in-built torch is designed to blast its ultra-loud 135dB siren not into your hand, but out in front where it's most effective. Features a belt/wall-mounting clip and pull-pin activation. Uses 4 'AAA' batteries (not included).

L 5181

**$24.80**



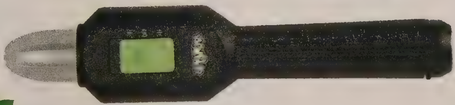
### Key Alert Personal Alarm

An extremely compact, high quality key chain alarm with flashlight. This unit emits an ear piercing 120 decibel alarm with the simple flick of a switch. Uses 12V battery S-7423 (included).

L 5178

**$25.20**

ALARM - OFF - LIGHT
KEY ALERT™



### Xenon Hand Strobe Light

Ideal for emergency and signal indication in the car, boat or caravan. Also great for bush walkers, joggers or push bike riders. Lightweight and portable, features 2 flash speed settings. Requires 2 x 'AA' batteries (not included).

L 7224

**$12.80**

## SMOKE ALARMS

### Smoke Alarms and Home Fire Protection

Fire is a deadly threat to any household. It can strike anywhere, at any time. Smoke alarms provide warning. Smoke alarms are the easiest, most cost-efficient way to alert your family of a developing fire. The more smoke alarms you have installed in your home, the more your chances increase that you will survive the fire. An important point to remember is that often smoke kills not flames. The poisonous gases emitted by a fire actually put sleepers into a deeper sleep and many suffocate without ever waking or even becoming aware of the fire.

### Where should I install smoke alarms?

Where to install smoke alarms is the most important consideration in proper fire protection. Quite often, they are improperly located and are not easily accessible or do not work properly.

We suggest that you:

- Install a minimum of two alarms even in single level homes.
- Install a smoke alarm inside each bedroom as well as in the main corridor outside each bedroom area.
- Install a smoke alarm above stairwells.

### What types of smoke alarms are there?

There are two basic types of smoke alarms: ionisation and photoelectric. Both are effective at detecting fire, yet each has a unique detecting system. Additional features can include an escape light, silencing button, or light test feature. It is recommended to test your smoke alarms are working monthly and change the batteries at least once a year.

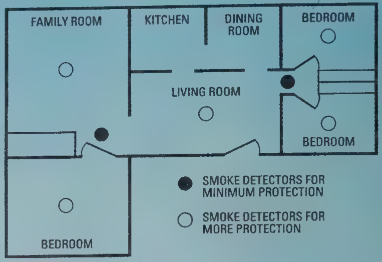
### What should I do if I hear the smoke alarm's sound?

NEVER IGNORE THE SOUND OF A SMOKE ALARM. If the smoke alarm is sounding its alarm, there is a reason. You and your family must be able to escape quickly and safely.

### SMOKE DETECTOR PLACEMENT IN A SINGLE-STOREY HOME

**Figure 6-1.**

**SMOKE DETECTOR PLACEMENT IN A SINGLE-STORY HOME**

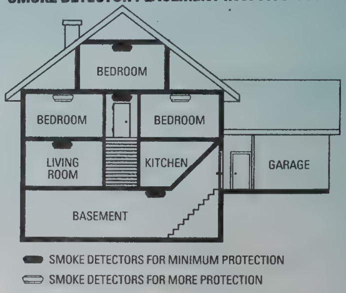

FAMILY ROOM
KITCHEN
DINING ROOM
BEDROOM
LIVING ROOM
BEDROOM
BEDROOM
● SMOKE DETECTORS FOR MINIMUM PROTECTION
○ SMOKE DETECTORS FOR MORE PROTECTION

*Source: First Alert*

### SMOKE DETECTOR PLACEMENT IN A TWO-STOREY HOME

**Figure 6-2.**

**SMOKE DETECTOR PLACEMENT IN A TWO-STORY HOME**


BEDROOM
BEDROOM
BEDROOM
LIVING ROOM
KITCHEN
GARAGE
BASEMENT
SMOKE DETECTORS FOR MINIMUM PROTECTION
SMOKE DETECTORS FOR MORE PROTECTION

*Source: First Alert*

### Plugz Smoke Alarm Twin Pack

Twin pack of all purpose fire alarms to protect the rooms in your home. Very easy to install. Each has a test button, an audio low battery warning and full mounting bracket and hardware. 9V batteries included.

L 8040

**$15pk**

**Chubb**

### Smoke Alarm with Hush Button

Ionisation smoke alarm with added convenience of a hush button to silence nuisance alarms from cooking or bathroom steam. 9V battery included.

L 9900

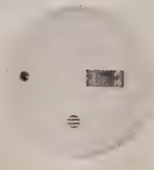
**$19.70**

### Lifesaver Escape Light Smoke Alarm

Smoke & fire alarm with exit light for halls and stairways. Includes two 9 volt batteries for the alarm & the light.

L 9902

**$27.95**

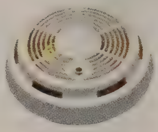


### First Alert® Smoke Alarm

Ionisation smoke alarm with hinged cover for easy replacement of the 9V battery (included). Features an audio low battery warning and test button which checks all alarm functions.

L 5216

**$24.95**

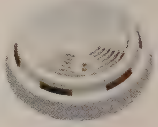


### First Alert® Hush Smoke Alarm

Ionisation smoke alarm ideal for family rooms and close to the kitchen. This alarm features a special alarm silencing button which quiets nuisance alarms for 3 minutes. Features patented design 'Torch Test' for ease of maintenance. 9V battery included.

L 5123

**$34.80**



### First Alert® Optic Smoke Alarm

Photoelectric smoke alarm with flashing LED indicator to show the detector is working. Advanced photo optic sensor which is somewhat more effective in detecting slow, smoldering fires. Customer order only item.

L 9901

**$52.95**

## MONOCULAR AND BINOCULAR

**8x21 Monocular Scope**

Ideal for viewing sporting events, security, hunting, bird watching, hiking or concerts. With 8x magnification and a 21mm coated lens. Field of view: 131m at 1000m. Includes carry pouch, lanyard and cleaning cloth.

L 8201 **$39.95**

**10x25 Binocular**

Ideal binoculars for security, sports or concerts. With 10x magnification and a 25mm lens. Roll down eyecups and rubber armoured housing, roof prism and fully coated lens. Comes with carry pouch and cleaning cloth.

L 8202 **$69.95**

**10x50 Ruby Binoculars**

With 10x magnification and 50mm lens, these handy binoculars are ideal for watching sporting events or concerts, for security use and for bird watching. Includes carry case, lens covers, lanyard and cleaning cloth.

L 8203 **$68**

**60mm Refracting Telescope**

Ideal for watching the moon, looking closer at the stars, or those panoramic views from your backyard or holiday home. Complete with 10mm and 20mm eyepieces, 2x Barlow lens, 1.5x Erecting eyepiece, and right angle mirror tube.

L8601 **$199**

## NIGHT VISION

**Apple Night Eagle Viewer**

An ideal model for the first time user. This model has one of the largest fields of view of all night vision models, especially useful for viewing expansive areas. It can be mounted on a tripod and comes complete with carry case. Specifications:

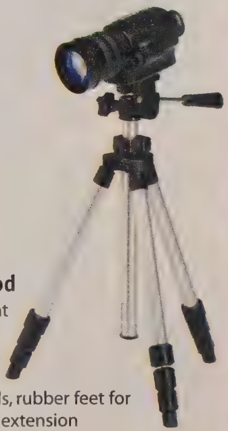
Field of view: 40 degrees
Eyepiece adjustment: +5 diopters
Magnification: 2.4 x
Dimensions: 240 x 100 x 80 mm
Weight: 835 g
Batteries: 1 x 9 V
L 8180 **$389**

## TRIPODS

**Mini Tripod**

Small, portable tripod that is ideal for cameras.

L 8205 **$16.80**

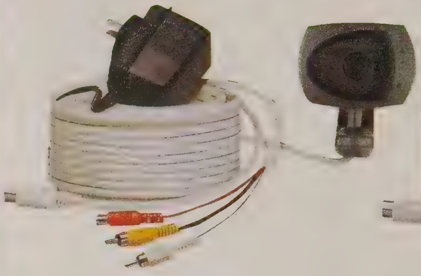


**Adjustable Length Tripod**

With lightweight anodised aluminium legs, adjustable tilt and pan controls, rubber feet for stability and an extension height of 1.15m.

L 8210 **$42**

## MICROMARK CCTV CAMERA SYSTEMS



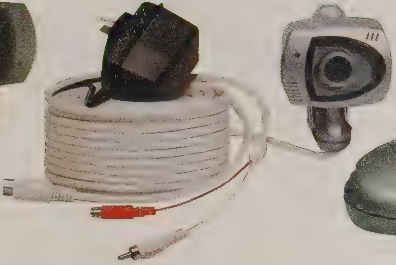
### Micromark B&W CCTV Camera System

State-of-the-art B&W camera technology giving high picture quality, with 6 infra-red LEDs for improved night time vision. Its built-in microphone allows you to watch and listen. Moisture prevention system for indoor/outdoor use. Includes one camera, a 17m 6-pin DIN cable, adjustable mounting bracket for undercover outdoor use, a 9V DC power adaptor and an illustrated installation manual.

L 5880 **$249**

**Micromark 10m Extension Cable**

L 5885 **$30**



### Micromark CCTV Colour System

State-of-the-art camera technology giving high quality colour images. Simply plugs into your existing TV or VCR. Weather resistant for indoor or under cover outdoor use. Includes colour CCTV camera with a 17m 6-pin DIN cable, fully adjustable mounting bracket, wall plugs, screws, cable clips, 9V DC power adaptor, warning sticker and a fully illustrated installation manual.

L 5881 **$328**

### Micromark CCTV PIR/Video Starter System

Simply connect to your existing TV and VCR and you can monitor your property, as any movement (within range) can be automatically recorded on videotape. Features audio buzzer to warn of visitors, anti-tamper alarm warns of camera disconnection, 6 infrared LEDs for improved night vision, PIR sensor detects movement up to 4m away.

L 5882 **$347**

## WOOJU & SWANN OBSERVATION SYSTEMS

**new for 2002**

### Swann SpyCam Colour CMOS Camera

This tiny pinhole lens colour CMOS camera is ideal for undetected surveillance. It connects easily to a TV or VCR for live viewing or recording via the video input. Comes with AC power supply, 9V battery clip and RCA-RCA adaptor.

L 5843 **$219**

### Wooju CCTV Observation System

Ideal for monitoring your home, baby's room or the backyard. Can be connected to a VCR to allow recording or playback of images. Includes monitor, camera and a 20m cable. Camera has infra red LEDs and electronic auto iris, enabling use in any lighting condition from bright sunlight to almost total darkness. Can be connected to a VCR for recording.

L 5815 **$268**

Swann
guardian

**new for 2002**

### Swann Wireless Guardian

Designed for monitoring your baby, or for keeping an eye on playrooms, entrance-ways, or the workplace. 2.4GHz technology allows for clear picture and audio transmission to the monitor. Both receiver and monitor can be battery powered, however AC plugpacks are provided.

L 5839 **$499**

### Swann SecuraCam CCTV Camera

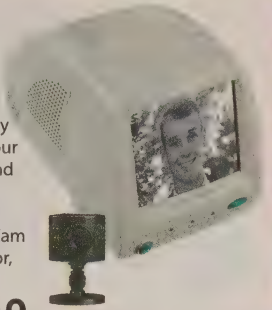
High quality, black & white camera utilising a CMOS lens system plus infra-red LEDs to aid night time and low light vision. It has an inbuilt microphone to let you hear exactly what's going on as well. RCA connection plugs straight into your TV, VCR, or SecuraView monitor.

L 5864 **$168**

### Swann SecuraView CCTV Observation System

This modular system lets you easily create a CCTV system that suits your needs. Add another SecuraCam and the SecuraView monitor lets you auto-switch between the two cameras. Comes with one SecuraCam camera, 5" black and white monitor, and 18m cable.

L 5863 **$299**



### Swann MicroCam Wireless Colour CCTV Camera

Superior quality colour CMOS camera with built in 2.4GHz transmitter providing up to 100m transmission range to the receiver unit. Can be powered by either batteries or mains power (plug packs included). Simply connect the receiver unit into a TV or VCR for full motion colour images.

L 5847 **$698**

### Swann AV Multi-Switcher

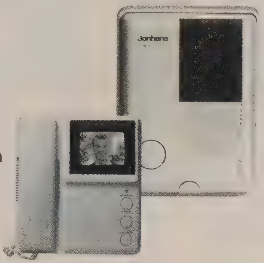
4 channel switch box featuring full auto scanning for up to four cameras with adjustable delay from 1-20 seconds. Alternatively, connect all your entertainment devices to your TV, then switch between them using the supplied remote control. Four AV or S-Video inputs and one AV or S-Video output.

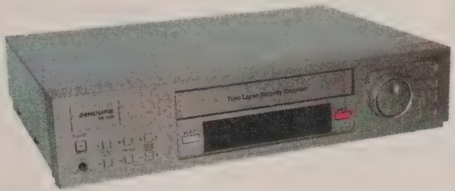
L 5856 **$149**

### Video Door Intercom System

Ideal for the home, this system offers great security by letting you know who's at the door before you open it. When a visitor presses the 'call' button, a welcoming chime is triggered, while a video camera transmits their image to the monitor located inside. Includes a two-way intercom that allows you to talk to the visitor. Features an optional door latch release facility that can allow you to open the door remotely. Easy D.I.Y installation. Requires 5-core data cable (not supplied).

L 5803 **$499**





### 24-Hour Time Lapse VCR

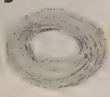
This Mitsubishi time lapse VCR is designed especially for industrial, educational and security recording. In addition to ordinary three-hour recording modes, it has time lapse modes that allows recording of 12 or 24 hours. Frame-by-frame playback and high-speed playback of longer recordings.

L 5846 Customer order only **$1557**

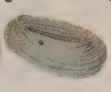
## WOOJU ACCESSORIES

A

B

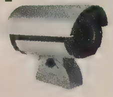


C



D

E



| | | | | |
|---|---|---|---|---|
| A | **4-Pin Camera Cable 40m** | 40m cable | L 5814 | $78.30 |
| B | **4-Pin Camera Cable 60m** | 60m cable | L 5813 | $117.40 |
| C | **6-Pin Camera Cable 40m** | 40m cable | L 5824 | $86.70 |
| D | **6-Pin Camera Cable 60m** | 60m cable | L 5823 | $147.20 |
| E | **Metal Camera Cover**<br>High quality aluminium waterproof camera housing. Size: 240 x 120 x 180mm. | | L 5826 | $179 |

### Merlin UHF Remote Control Kit

433MHz remote control system with a switchable momentary/toggle relay output. Ideal for incorporation into home alarm panels, upgrading older garage door openers or for providing wireless control to electronic projects. Transmission range of up to 100m.

L 7510 **$129**

## SECURITY LIGHTING

### Elto Security Sensor Light

This automatic motion sensor light is controlled by a passive infrared sensor (PIR) which automatically operates the light when heat movement is detected.

L 8602 **$34.80**

new for
2002

### ARLEC Security Sensor

Attach this to your existing lights and when movement is detected they'll turn on! It's weatherproof. 10m x 180 degrees sensor range. Operates manually or automatically. 1,000W max.

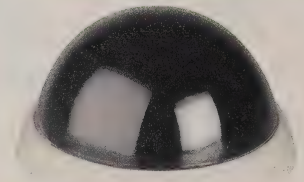
L 5348 **$55.40**

### HomeWay Par 38 Bulb 150W

High wattage floodlight bulb commonly used in outdoor security sensor lights. Edison screw fitting.

S 5129 **$8.95**

## DUMMY CAMERAS



### DSE Dummy Dome Camera

Increase your home and small business security cheaply with this Dummy Dome Security Camera. Easily installed, it just screws onto the ceiling. It uses a real camera housing so it will help fool even the smartest of potential burglars.

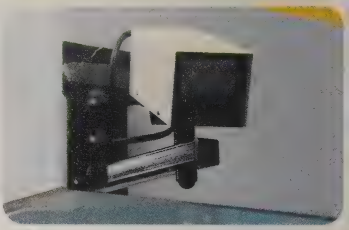
L 5854 **$29.80**

GKB CCD CAMERA

### DSE Metal Dummy Security Camera

Uses a real metal camera housing with an in-built red LED (requires 12V DC power supply to operate LED), fake DC lead and coaxial cable with BNC connector to enhance realism. Has an adjustable bracket and it screws onto a wall.

L 5851 **$78**

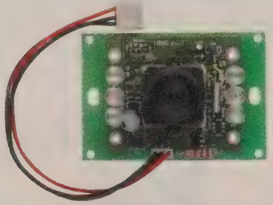


### DSE Dummy CCD Camera

Features realistic metal camera housing, realistic camera lens, sturdy metal bracket and swivel mount. Also features optional flashing red LED. (Requires 1 x D sized battery).

L 5852 **$98**

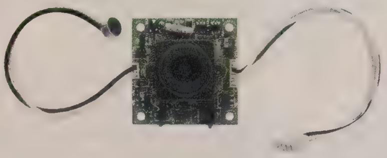
## CCD CAMERA MODULES



### B&W CCD Camera Module with Infrared LEDs

Adjustable focus. Image pick-up device: 1/3" CCD area sensor. Video system: CCIR. Number of pixels: 500 x 582. Scanning system: 625 lines 50 field/sec. Resolution: 380 TV lines. Usable illumination: 0.1 lux. Dimensions: 55 x 38mm.

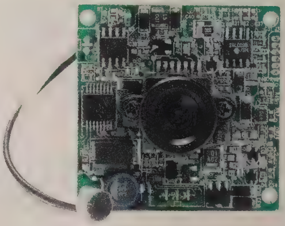
L 5872 **$102**



### B&W CCD Camera Module with Audio

Adjustable focus. Video system: CCIR. Number of pixels: 500 x 582. Scanning system: 625 lines, 50 field/sec. Resolution: 380 TV lines. Minimum illumination: 1.0 lux F1.8. Electronic shutter speed: 1/50-1/100,000 sec. Dimensions: 32 x 32mm.

L 5873 **$106**



### Colour CCD Camera Module with Audio

Resolution: more than 330 TV lines. Minimum illumination: 2 lux with F1.2 lens. Power source: 12 volts DC. Video system: PAL. Electronic shutter speed: 1/60-1/100,000. Dimensions: 38 x 38mm.

L 5876 **$218**

Uniden

### Car Alarm VS235XR

DIY car alarm with failsafe arming, audible confirmation, and open door protection. Features engine immobiliser output, current and dual stage shock sensing. Comes with 3 button remote control with rolling code technology for increased security.

L 9922

**$129**

Uniden

### Car Alarm VS255XR

DIY alarm with central locking output, flashing light output and tamper indicator. Features active and failsafe arming, engine immobiliser output, dual stage shock sensing as well as current sensing. 3 button rolling code remote has 18 quintillion codes for ultra high security.

L 9923

**$149**

Uniden

### Car Alarm VS1100XR

Rolling code alarm with automatic engine immobiliser and dual stage shock sensor. Offers fail safe arming, boot and bonnet protection and central locking output.

L 9920

**$198**

Uniden

### VS2100XR Car Alarm

Top of the line alarm with rolling code remote controls, automatic engine immobiliser, glass break sensor, battery backup siren and a super loud internal piezo siren. Offers open door protection, pre-intrusion shock warning and tamper indicator.

L 9921

**$325**

## ACCESSORIES

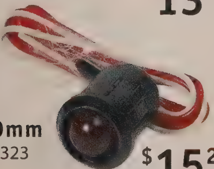
### Red Car Alarm LED

An ideal, easy-to-install flashing security light. Can be wired to ignition as a theft deterrent.

**5mm**

L 5322

**$13.80**



**10mm**

L 5323

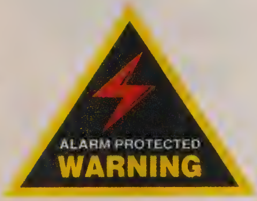
**$15.20**

### Adjustable Car Door Pin Switch

This switch features adjustable length for professional quality installation.

L 5252

**$4.80**

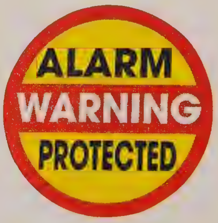


### Car Alarm Sticker

These prominent stickers function as an effective deterrent to car thieves. Apply to the inside of the window.

L 5310

**$4.95**



### Car Alarm Warning Sticker

Let them know your car is protected. Circular sticker, 5cm diameter.

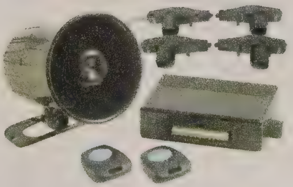
L 5313

**$4.95**

### GX Compact Car Alarm

Compact car alarm with current sensing, dual stage shock sensor, optional immobiliser output, auto siren reset/rearm and central locking output. Comes with one remote control.
L 5441 **$99**

### GL+CLK Integrated Car Alarm



Microprocessor controlled alarm with engine immobilisation circuit and four door central locking kit. Safety circuit prevents arming while ignition on. Selectable auto rearm, silent arm/disarm, and current sensing.
L 5443 **$235**

Customer order only

### GT Compact Car Alarm

Microprocessor controlled rolling code alarm with current and two stage shock sensing, engine immobilisation and central locking outputs. Offers a range of programmable features including quiet arming and sensor isolation.
L 5442 **$249**

Customer order only

### RA Car Alarm and Immobilisation System

Full feature car alarm with diagnostic alarm memory, built to comply with the performance requirements of AS/NZS 3749:1 1997 (all black wiring harness etc). Features two point engine immobilisation, built in glass break sensor, code hopping remote technology, central locking output, automatic siren reset and rearm. Offers a range of programmable features including valet mode, door lock on ignition, perimeter night light, auto adjustable car body impact sensor and door ajar warning.
L 5429 **$449**

Customer order only

### Accessories

| | | |
|---|---|---|
| Battery Backup Siren (SBB) | L 5431 | $78.00 |
| Door Lock Adaptor (DLK) | L 5436 | $59.80 |
| Automatic Window Closer (GLU400) | L 5437 | $74.00 |
| Boot Release Motor (DL105) | L 5438 | $64.95 |

DICK SMITH ELECTRONICS
4 Door Central Locking Kit

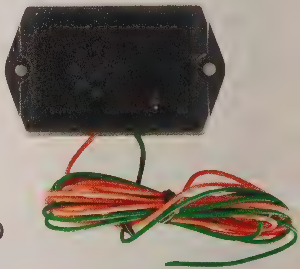
### 4-Door Central Locking Kit

This product offers the convenience of central locking at a low price. Lock and unlock four car doors via the driver's door. Suitable for connection to car alarms and immobilisers with a negative pulse output. Includes installation manual, all counting hardware, wiring harness, motors and relay control unit.
L 5451 **$68**

### UHF Learning Remote

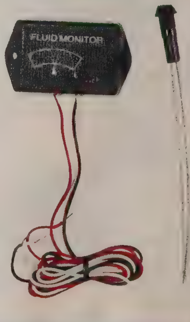
Universal remote control that is programmable to your remote's frequency. (Not suitable for rolling-code remotes and alarm systems.)
L 5440 **$49.60**

### Headlight Reminder



Signals you for 10 seconds with an audio 'beep' sound and a flashing LED light if you leave your headlights on.
L 5461 **$14.40**

### Fluid Level Monitor



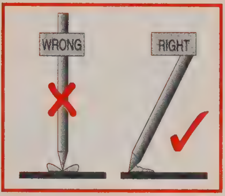
Indicates via a red light whether or not your wiper fluid level is low or not. A great reminder prior to long trips.
L 5463 **$14.40**

## The Easy Way To Solder

**For projects and repair jobs, properly soldered connections are a must. But, if you're just starting out in electronics, a little friendly advice will help you get it all together.**

**ONE:** Make sure the surfaces to be soldered are clean. A little dirt or grease (even from just handling components with your bare hands) will make it just that much harder for the solder to attach itself to the connection being soldered. A small file, sandpaper or a wire brush can be very useful for removing this. When soldering electronic equipment, you should always use resin-cored solder (see page 185 for solder).

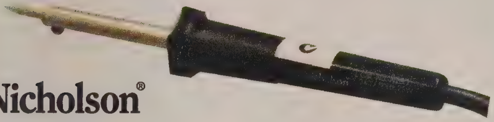
**TWO:** Before you use a new soldering iron for the first time, heat the iron, then coat the tip with solder to prevent oxides from forming, then immediately brush off the excess with a soft, damp cloth to form a smooth, silvery soldering surface. This is called "tinning" and should be done periodically to ensure efficient soldering.



**THREE:** Apply the tapered surface of the iron's tip to the connection, then apply solder (see illustration). Don't use the iron's tip to directly melt solder – let the connection melt it for you. Otherwise you may create a "cold" solder joint – one that is likely to fail later.

**FOUR:** When solder begins to flow, carefully remove solder and then lift the iron's tip away from the job while keeping the connection stable.

**FIVE:** When soldering delicate components, work quickly and use a heatsink (T 2620) to draw off damaging heat.



**Nicholson®**

### 25W Soldering Iron

A quality soldering iron for general-purpose soldering applications in the electronics area. Includes both a pointed and flat tip as standard. It is mains powered, and is supplied complete with a mini soldering iron stand.

T 2325

$24.80

**Tip to Suit Nicholson N25D** T 2326 **$7.50**

**SCOPE**

### 5-Piece Mains Powered Soldering Kit

A great gift for any budding electronics enthusiast, or as a standby repair tool kit. This quality general-purpose soldering iron comes complete with resin-core solder, an iron stand and cleaning sponge, plus two screwdrivers. Rated at 25W 240V.

T 1652

$39.95

**4mm Conical Tip** T 2301 **$5.95**

SCOPE
5 PIECE SOLDERING KIT
MAXIMA
General Purpose
Fixed Temperature Iron
25W–240V

**DSE**

### Safety 17W Soldering Iron

Fitted with a non-burn style mains cable, this special version 17W soldering iron is well suited for users such as schools and colleges where safety and ease of use are of prime concern.

T 2302

new for 2002

$37.40

**Medium Chisel Tip** T 2002 **$12.30**

**HOTRODS**

### 80W Soldering Iron

Easy-to-use and extremely efficient soldering irons. With 240V operation, 370ºC operating temperature, long-life replaceable tips and lightweight handles. Approved by electrical authorities, they meet Australian Standard number 3114.

T 2315

$44.95

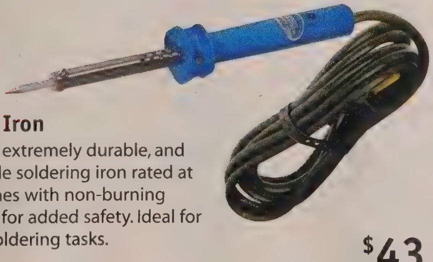
**7mm double-flat tip** T 2316 **$5.95**

**goot**

### 40W Soldering Iron

Lightweight, extremely durable, and highly reliable soldering iron rated at 40 watt. Comes with non-burning silicone lead for added safety. Ideal for all general soldering tasks.

T 1815



$43

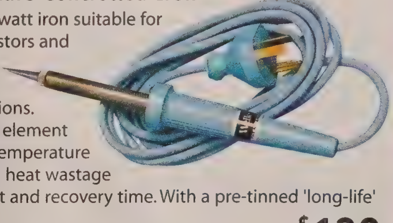
**1.5mm chisel Tip** T 1811 **$9.60**

**Weller**

### 60W Temperature Controlled Iron

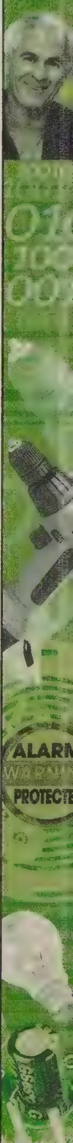
A lightweight, 60-watt iron suitable for working on transistors and printed circuits through to heavy electrical connections. The ceramic-filled element provides precise temperature control, minimises heat wastage and has a fast heat and recovery time. With a pre-tinned 'long-life' iron-plated tip.

T 1345



$139

**1.58mm chisel tip** T 1347 **$15.95**



## Soldering Irons

### 12V 20-40 Watt Soldering Iron

The ideal iron for on-site service and repairs, it's rated at 12V 20-40 watts and is both fast to heat and fast to recover. Comes with interchangeable long-life tip, 2 metre power lead and large insulated battery clips.
T 2100

$32^50

**Spare Tips**

| | | |
|---|---|---|
| **Medium Chisel** | T 2002 | **$12.30** |
| **Thick Chisel** | T 2004 | **$12.30** |
| **Fire Conical** | T 2006 | **$12.30** |

### Fast Heating 12V 30-150W Soldering Iron

Ideal for outdoor service or repair work! This quality Scope soldering iron heats up in as little as 3 seconds and supplies up to 150 watts with a current drain of 45A and operating time (on a fully charged battery) of approximately 1 hour (at 30W). Comes with six-metre lead and battery clips.
T 1635

$107

## BUTANE BLOWTORCHES

### Economy Pencil Butane Blowtorch

Great for heatshrink work, silver solder, gold, silver, brazing or glass work. It fits easily in your pocket and is powered by butane gas.
T 1380

$15^60

### Microjet Butane Torch

Uses standard cigarette lighter to produce a concentrated flame with temperatures as high as 1300°C, for up to 20 minutes. Push button ignition (inbuilt piezo starter) with safety lock switch to minimise accidental ignition.
T 1366

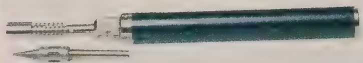
**Lighter Refill to suit Microjet Torch** T 1363 **$1.10**

$38

### Mini Butane Blowtorch

Butane powered with simple push-to-start electronic ignition and large gas storage capacity. The flame is fully adjustable, and the unit can either be hand-held or placed on the benchtop in its stand. Maximum blowtorch temperature of 1300°C. (Butane gas not included)
T 1390

$65



### Two-in-One Butane Soldering Iron

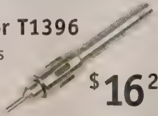
A large butane powered blowtorch with adjustable flame as well as a soldering iron tip. Maximum blowtorch temperature of 1300 degrees C, and soldering temperature of 400 degrees C.
T 1396

$44^95

### 2.5mm Tip for T1396

Chisel Tip.
T 1407

$8^50



### Tip & Catalyst for T1396

2.5mm Chisel Tip plus catalyst.
T 1405

$16^20

### Butane Soldering Iron

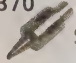
Fits In Your Pocket! Ideal for service people, handymen and technicians, this medium duty butane powered iron gives up to 60 minutes of continuous use at full power (the equivalent of 60 watts) and is built to last.
T 1370

$59^95

### 1.0mm Tip for T1370

Model PT10.
T 1372

$21^50



### 2.4mm Tip for T1370

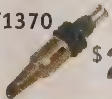
Model PT24.
T 1369

$21^50

### 3.2mm Tip for T1370

Model PT32.
T 1371

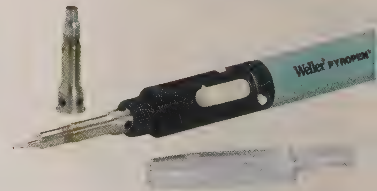
$21^50



### 4.8mm Tip for T1370

Model PT48.
T 1373

$21^50



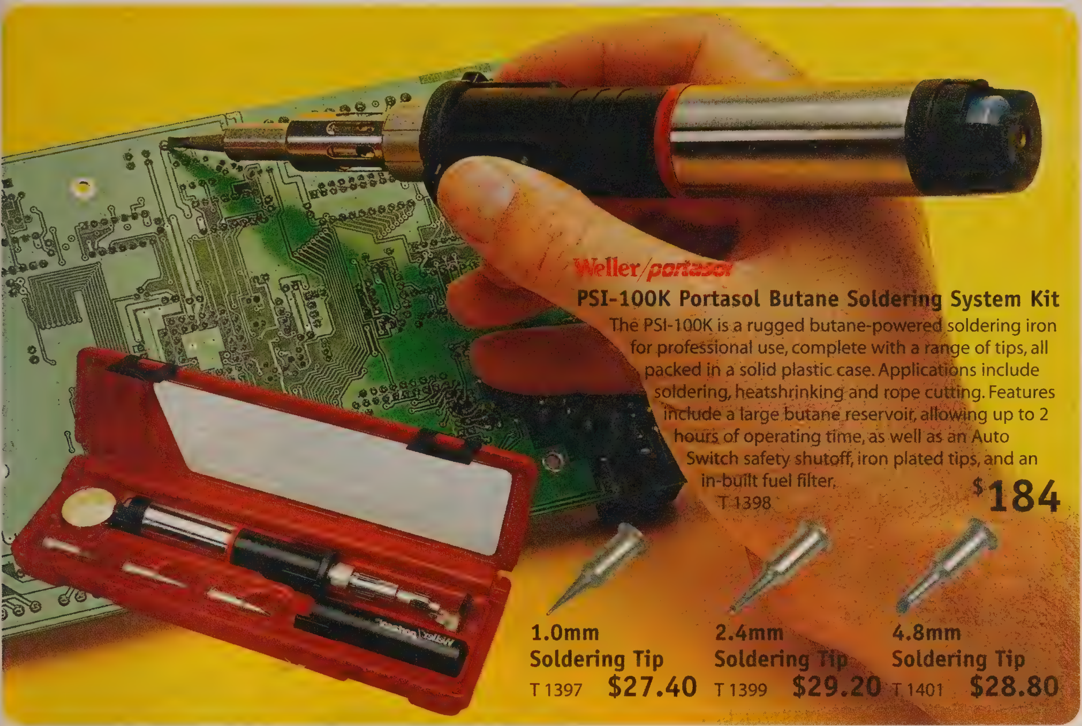
### Pyropen Junior Soldering Iron

Quality butane powered soldering iron with piezo self-ignition via finger switch. The handle can hold approximately 1 hours supply of butane gas and the effective power can be adjusted over 15-60W. It also features a fast 30 second heat up time. Includes 1mm soldering tip, hot blower tip and protective cap.

- Adjustable from 15W to 60W
- Overall length 8.25" (210mm)
- Weight 4oz (113g)
- Refill time 20 seconds
- Heat-up time 30 seconds
- Fuel tank capacity approximately 1 hour.

T 1425

$119



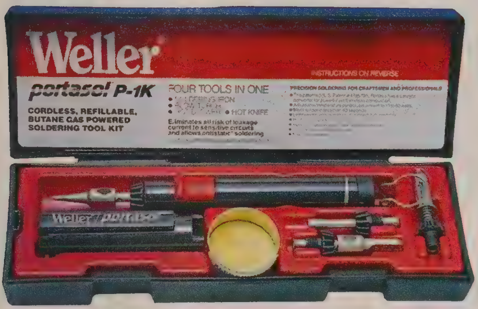
**Weller/portasol**

### PSI-100K Portasol Butane Soldering System Kit

The PSI-100K is a rugged butane-powered soldering iron for professional use, complete with a range of tips, all packed in a solid plastic case. Applications include soldering, heatshrinking and rope cutting. Features include a large butane reservoir, allowing up to 2 hours of operating time, as well as an Auto Switch safety shutoff, iron plated tips, and an in-built fuel filter.

T 1398 **$184**

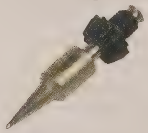
| Item | Code | Price |
|---|---|---|
| 1.0mm Soldering Tip | T 1397 | $27.40 |
| 2.4mm Soldering Tip | T 1399 | $29.20 |
| 4.8mm Soldering Tip | T 1401 | $28.80 |


Weller
portasol P-1K
FOUR TOOLS IN ONE
CORDLESS, REFILLABLE, BUTANE GAS POWERED SOLDERING TOOL KIT
INSTRUCTIONS ON REVERSE

### Weller/portasol 'Pocket' Butane Soldering System

This patented Portasol P-1K kit includes a butane powered soldering iron plus blowtorch, hot blower and hot knife tips all in a handy storage case. With the equivalent of 10-60 watts of power and temperature adjustment up to 400°C for soldering and 1200°C for blowtorch use, it's ideal for the hobbyist, handyman or professional technician. Heats up within 40 secs to soldering temperature.

T 1374 **$124**



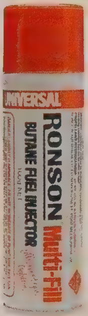
| Item | Code | Price |
|---|---|---|
| 1.0mm Soldering Tip | T 1375 | $21.50 |
| 2.4mm Soldering Tip | T 1378 | $22.40 |

## BUTANE & LPG

### Ronson Butane Gas 100g

For lighters and blowtorches. Supplied with 5 injector adaptors to suit lighters and butane tools.

N 1081 **$8.95**


UNIVERSAL
RONSON Multi-Fill
BUTANE FUEL INJECTOR

**DSE**

### LPG Refill 150g

DSE gas refill to suit most butane or LPG burners and blowtorches.

N 1085 **$9.95**

DICK SMITH ELECTRONICS

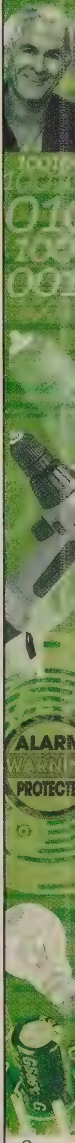
**Weller**

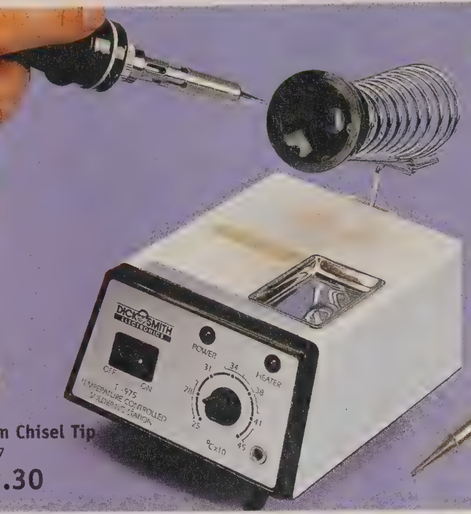
### Butane Gas 200g

Filtered butane gase, the ideal choice for use with Portasol/Pyropen irons.

N 1092 **$12.50**

Weller
BUTANE GAS REFILL

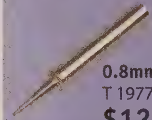




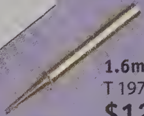
## Temperature Controlled Soldering Station

Affordable quality for the technician or enthusiast. This soldering station provides fully variable temperature control from approx. 250°C to 450°C, plus zero voltage crossing circuitry for low noise operation. While not a sensor-compensated temperature-control design, it is suitable for a wide range of soldering applications. It features a lightweight soldering pencil with heat-resistant cable, iron holder and tip cleaning sponge, and is fully Energy Authority approved. Supplied with a long-life 1.6mm plated tip

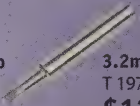
T 1975 **$155**



**0.8mm Chisel Tip**
T 1977
**$12.30**



**1.6mm Chisel Tip**
T 1978
**$12.30**



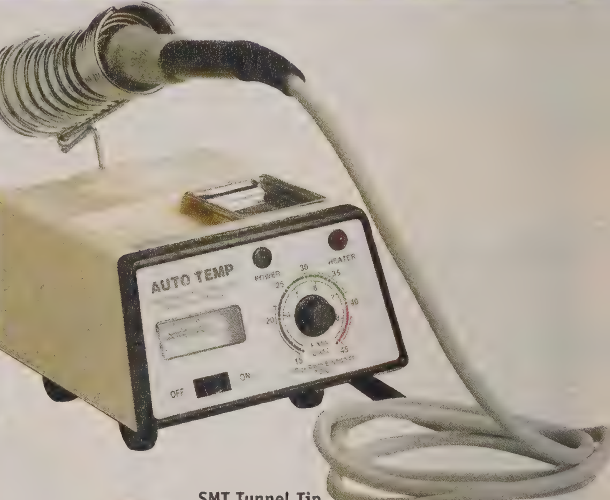
**3.2mm Chisel Tip**
T 1979
**$12.30**

## Temperature Controlled Soldering Station

Developed to meet the present and future needs of the electronic production industry, service technicians and hobbyists, this professional quality soldering station is based on the proven design of our previous T 2000 model. Solidly built, the station now has a thinner, lightweight soldering pencil and for safety, the transformer in the base unit isolates the pencil from the mains and provides 24V AC to the heater element. It also incorporates zero-voltage crossing circuitry to help protect sensitive componentry.

- Provides variable temperature range of 150°C to 450°C
- Temperature is sensed at the tip, and displayed on the front panel meter
- Includes a lightweight, yet powerful, 48W soldering pencil with heat-resistant silicone rubber cabling
- Uses the same economical tip range as the previous T 2000 model
- Supplied with a soldering iron holder, tip cleaning sponge, and medium size chisel tip.

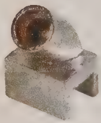
T 2200 **$219**



**0.8mm Chisel Tip**
T 2006
**$12.30**

**1.6mm Chisel Tip**
T 2002
**$12.30**

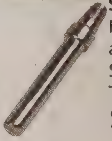
**3.2mm Chisel Tip**
T 2004
**$12.30**



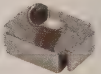
**SMT Tunnel Tip**
7mm x 12.5mm. Requires T 2042 adaptor.
T 2031
**$26.95**

**SMT Tunnel Tip**
6mm x 10mm. Requires T 2042 adaptor.
T 2032
**$26.95**

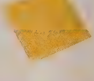
**SMT Tunnel Tip**
6mm x 5mm. Requires T 2042 adaptor.
T 2033
**$26.95**



**SMT Tip Adaptor**
Necessary for attaching and SMT tips.
T 2042
**$12.30**



**SMT Box Tip**
23mm x 17mm. Requires T 2042 adaptor.
T 2030
**$26.95**



**Replacement Cleaning Sponge**
T 2010
**$3.50**

## Digital Display Soldering Station

This professional soldering station allows easy adjustment of the tip temperature from approximately 150°C to 450°C, with an internal sensor located near the tip for fast response and more accurate temperature monitoring. The lightweight 55W soldering pencil is fed by a 24V AC transformer in the base unit for improved safety. Adding to the safety level is the pencil's highly flexible silicone rubber cable.

- 55W soldering pencil
- +/- 3°C tip temperature stability
- Zero-voltage crossing circuitry assists protection of sensitive circuits
- Temperature Lock function
- LED 'Heater On' indicator
- Large 14mm high LED temperature display
- Includes tip cleaning sponge plus Temp-Lock Allen key

T 2250

**$299**

### 0.8mm Conical Tip

Iron clad copper construction.
T 2252
**$14.95**

### 1.6mm Chisel Tip

Iron clad copper construction.
T 2254
**$14.95**

### 3.2mm Chisel Tip

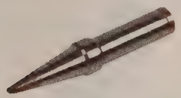
Iron clad copper construction.
T 2256
**$14.95**

**Weller**

### WTCPT Soldering Station

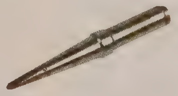
Weller is the first choice of many hobbyists, technicians and service people. Design features such as its non-burning silicone rubber soldering pencil cable, long-life iron-plated tips, lock slots on both sides of the soldering iron stand and wick-fed tip-cleaning sponge make Weller a name you can trust! The heating element (48W max) operates from an internal 24V transformer. Supplied with a 370°C screwdriver tip as standard.
T 3000

**$256**



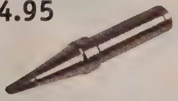
### 1.6mm Screwdriver Tip

PTA7 370°C temperature.
T 3003
**$14.95**



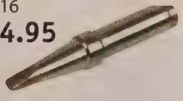
### 2.0mm Long Screwdriver Tip

PTL7 370°C temperature.
T 3016
**$14.95**



### 1.6mm Screwdriver Tip

PTA8 430°C temperature.
T 3004
**$14.95**



### 2.4mm Screwdriver Tip

PTB7 370°C temperature.
T 3022
**$14.95**

HAKKO 936
HAKKO

### Hakko 936 Soldering Station

Well known in the professional servicing industry, this high quality general purpose soldering iron delivers superb performance. Uses an accurate manual temperature control with ceramic heater sensor and zero crossing heater switch systems. It's rated at 60W 24V AC and has an operating temperature of 200°C - 480°C with super quick heat up and fast thermal recovery times. The soldering station comes complete with holder, cleaning sponge, tip and sponge tray.

- Compact unit; takes up little space on the workbench
- Soldering irons have thinner grips for easier use.
- Lock screw prevents inadvertent changes to the temperature setting.
- Centigrade and Fahrenheit temperature scales.
- Stackable design puts 2 units in the bench space of one unit.

T 3810

Customer order only

**$348**

### Tip Cleaning Sponge

Model TC205. Suits Weller WTCPT Soldering Station.
T 3010

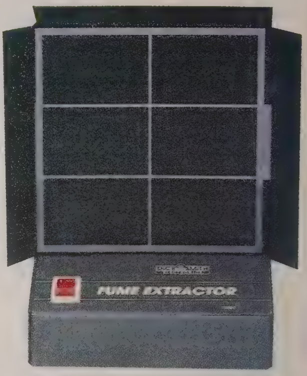
**$5.95**

# Soldering Aids

### One-Shot Desoldering Tool

The one-shot 45W portable desoldering tool is lightweight, self-contained, 240 Volt powered unit that uses a fast acting vacuum pump for almost effortless desoldering of joints. Made from tough high temperature Hytrell and Valox plastics together with a super-hard heating head, it provides adjustable electronic temperature control and a grounded heat element to reduce static. Now includes a flexible heat resistant mains cable for even safer operation. Supplied with long-life solder filters, high-temperature tweezers and stand. Featuring tough plastic casing, a super-hard heating head, and a non-burn mains cable, the T-2500 is supplied with long-life solder filters, 1mm desoldering tip, high-temperature tweezers and a desk stand.
T 2500

**$\$269$**



### Soldering Fume Extractor/Filter

At last, an affordable Fume extractor/filter to reduce fumes generated while soldering. Encased in strong metal, this 240V mains powered unit is placed next to the soldering activity where it draws fumes through a carbon filter and directs them elsewhere. Includes 2 filters and IEC-style mains lead.
T 2550

**$\$138$**

### 'Vacu-Bulb' De-Soldering Tool

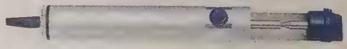
A quality de-soldering bulb with a Teflon Tip, for easy de-soldering and removal of excess solder. The material used in the tip won't scratch or damage delicate PC boards.
T 2581

**$\$8^{30}$**

### De-Soldering Tool

Ideal for reworking jobs and the removal of solder from electronic circuit components. Designed for easy one-hand use, its tip and barrel are fully removable for easy cleaning.
T 2561

**$\$13^{40}$**



### Anti-Static De-Soldering Tool

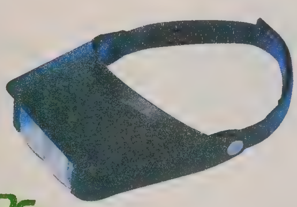
With anti-static Teflon tip! Lightweight and easy to use, this medium sized tool allows one-hand operation while removing solder from electronic circuits etc. It's easy to clean with an anti-static Teflon tip and metal barrel.
T 2567

**$\$22^{40}$**

### Helping Hands Work Station

It's bargain priced and makes working on PCBs much easier! Includes a heavy cast iron base for added stability, a magnifying glass, and alligator clips to hold the PCB still while you're working on it.
T 5715

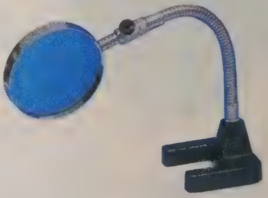
**$\$15^{50}$**



### Visor Magnifier

This lightweight visor simply slips onto your head and you flip it down when a magnified view is required. Has selectable 2.2x and 3.3x magnification.
T 4593

**$\$36^{20}$**



### Adjustable Magnifier & Stand

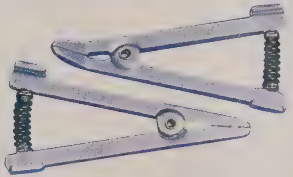
The perfect way to magnify items when you need both hands free. Consists of a large 87mm magnifying glass attached to a flexible gooseneck. Includes heavy die-cast metal base.
T 4592

**$\$36^{80}$**

### Soldering Aid Set

Includes a fine-point and slotted end probe, scraper end and wire brush probe, angle scriber and scraper probe, aluminium heatsink and 170mm tweezers.
T 2606

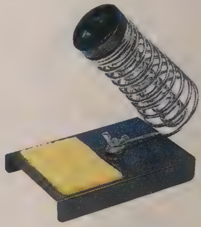
**$\$12^{30}$**



### Heatsink Clip Set

Spring loaded, plier grip clips for heat sensitive components and leads. Made of aluminium for high thermal conductivity, 2 types (one straight, one angled), both are 75mm long.
T 2620

**$\$11^{45}$**



### Soldering Iron Stand

A budget, lightweight soldering iron stand which makes working with your soldering iron that little bit easier. Comes with sponge.
T 1303

**$\$15^{30}$**

## Flux-Cored 60/40 Solder

General purpose, electronics grade flux-cored 60/40 (tin/lead) solder, suitable for most projects and repair work. Available in rolls or economical hobby tubes.

60/40 Rosin Core Solder
Diameter: 1.0mm

### Hobby Tubes

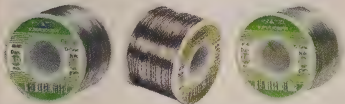
| | | |
|---|---|---|
| 0.8mm (17g) | N 1639 | $3.95 ea |
| 1.0mm (17g) | N 1637 | |

### Solder 100g Roll 60/40

| | | |
|---|---|---|
| 0.56mm | N 2627 | $7.95 ea |
| 0.80mm | N 2628 | |
| 1.00mm | N 2629 | |

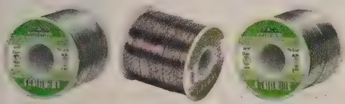
### Flux-Cored 60/40 Solder Roll (200g)

| | | |
|---|---|---|
| 0.91mm | N 1621 | $14.95 ea |
| 1.25mm | N 1619 | |



### Solder 250g Roll 60/40

| | | |
|---|---|---|
| 0.56mm | N 2637 | $16.95 ea |
| 0.80mm | N 2638 | |
| 1.00mm | N 2639 | |



### DSE Flux Cored 60/40 Solder 500g reel

| | | |
|---|---|---|
| 0.56mm | N 2647 | $24.50 ea |
| 0.80mm | N 2648 | |
| 1.00mm | N 2649 | |

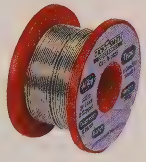
### Blister Pack

A handy size to take anywhere. 9g x 0.7mm.
N 1701 $6.90

### Solder Paste

This 96/4 (Tin/Silver) solder is lead-free and ideal for most metals including stainless steel. Not recommended for electrical/electronics use. Comes in 7 gram syringe. melting point 221deg.
N 1644 $13.60

### Flux-Cored 60/40 Savbit Solder Roll 0.90mm (100g)



General-purpose electronics grade flux-cored 60/40 (Tin/Lead) solder suitable for most projects and repair work.
N 1629 $8.60

### Rosin-Free Solder 0.91mm (500g)

60/40 Tin/lead solder with rosin free flux reduces fume toxicity. Ideal for people with asthma.
N 1725 $27.50

**Limited Stock**

### Soldering Iron Tip Tinner & Cleaner

Tip Tinner/Cleaner
TTC1
15g / 0.5oz
Made in UK

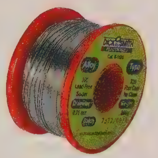
A fast and efficient method of cleaning and re-tinning soldering iron tips. 15g tin.
N 1648 $12.50

5-CORE SOLDER

### Solder Handy Roll 0.7mm (49g)

Multi purpose solder on a roll. 49g x 0.7mm.
N 1705 $9.95

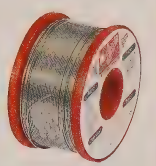
### Lead-Free Solder 0.71mm (200g)



Designed as a substitute for tin/lead cored solder. This solder is a 99.3% tin, 0.7% copper alloy. It is a melting point of 270 degrees C. 0.71mm diameter. 200g roll.
N1628 $14.95

### Aluminium Solder Roll 1.6mm (100g)

Alu-Sol is an aluminium-based solder used for joining aluminium, most alloys and dissimilar metals. Requires no additional flux or surface preparation. 1.6mm x 100g roll.
N 1625 $16.95



### Solder Savbit

| | | |
|---|---|---|
| 0.71mm x .25kg | N 1711 | $18.95 |
| 0.91mm x .25kg | N 1710 | $18.95 |
| 1.20mm x .25kg | N 1709 | $18.95 |
| 0.71mm x .5kg | N 1716 | $27.50 |
| 0.91mm x .5kg | N 1715 | $27.50 |
| 1.20mm x .5kg | N 1714 | $27.50 |
| 1.63mm x .5kg | N 1713 | $27.50 |

## DESOLDERING BRAIDS

### Desoldering Braid

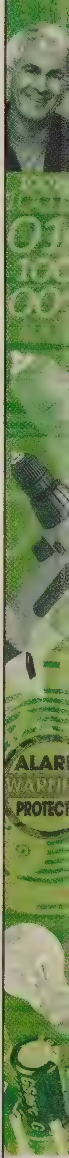
| Description | Cat No. | Price |
|---|---|---|
| 1.5m x 1.5mm | N 2810 | $3.95 |
| 1.5m x 2.0mm | N 2812 | $3.95 |
| 1.5m x 2.5mm | N 2814 | $3.95 |

Width Size
1.5
mm.
Length
1.5
metre

### Desoldering Braid

| Description | Cat No. | Price |
|---|---|---|
| 1.5m x 0.5mm | N 1824 | $5.75 |
| 1.5m x 0.8mm | N 1826 | $5.75 |
| 1.5m x 1.5mm | N 1828 | $5.75 |
| 1.5m x 2.2mm | N 1830 | $5.75 |

NC-BB
NO-CLEAN WICK



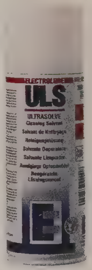
## ELECTROLUBE

**Anti Seize Paste**
Recommended where speed of assembly and dismantling is essential: nuts & bolts, solder tips, and type of joint exposed to extreme temperature and environment. 2ml Syringe.
N 1742 $7.30
Limited Stock

**Anti-Static Foam Cleanser**
Anti-static foaming cleanser for surfaces prone to static dust attraction. Specially developed for use on plastics, metal, glass and other synthetic surfaces. 200ml aerosol
N 1145 $13.80

ELECTROLUBE
AFC

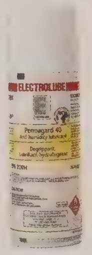
**Ultrasolve Non-CFC Cleaning Solvent**
For cleaning electrical contacts, computers, precision instruments, cameras, etc. Excellent for removing greases, oils, flux residues and acrylics Conformal Coatings from PCBs. 200ml aerosol
N 1170 $15.80


ELECTROLUBE
ULS
ULTRASOLVE

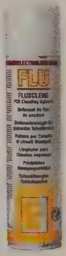
**Tamper Lacquer (Green)**
Bloc'Lube is a one part, air drying seal for screws, nuts, tuneable items and other "factory fixed" components where tamper evidence is required. Tack free after 10min, remains flexible for up to 24 hours. After this time the seal will become brittle. 15ml.
N 1210 $8.70
Limited Stock

ELECTROLUBE
BLV
Bloc'Lube

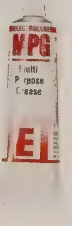
**Permagard**
A multi-purpose maintenance fluid that dries out damp electrical connections, penetrates corroded parts, lubricates & protects metal surfaces and frees seized parts. 200ml aerosol
N 1120 $14.95
Limited Stock


ELECTROLUBE
Permagard 40

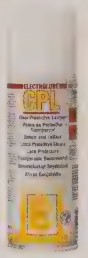
**Fluxclene**
A fast-drying aerosol solvent for removing contaminants and flux after soldering. Ozone friendly. 400ml.
N 1112 $24.95


FLU
FLUXCLENE

**Multi-Purpose Grease**
Lubricating grease for a wide range of electrical and mechanical applications. 50ml tube
N 1132 $13.80


ELECTROLUBE
MPG
Multi Purpose Grease

**Clear Protective Lacquer**
A protective coating to keep out harmful salt, dust and moisture. Can be soldered through for easy repairs. 200ml aerosol
N 1130 $19.95


ELECTROLUBE
CPL

**Isopropanol Cleaning Solvent**
Internationally-approved cleaning solvent. Rapid drying 99% pure Isopropanol, it's safe to use on most plastics. 400ml aerosol
N 1095 $26.95

ELECTROLUBE
IPA

## DSE AEROSOLS

**Contact Cleaner**
Non flammable contact cleaner can be used for electronics, PCB's, TVs, computers, telephones, CD players, keyboards. Will damage many plastics (test on a thin sample before use). 300g can.
N 1197 $15.30

POISON
DICK SMITH ELECTRONICS
Contact Cleaner

**Freeze Spray**
The Dick Smith Electronics low cost Freeze Spray is ideal for use in the electronic, automotive and engineering fields. Instantly cools small components for detecting faulty joints and components. 250g can.
N 1190 $19.95

DICK SMITH ELECTRONICS
Freeze Spray

**Lubricant**
Non flammable electrical lubricant can be used for electronics, PCB's, cameras, computers, telephones, radio cassettes, keyboards, TV's, CD players. 300g can.
N 1196 $15.30

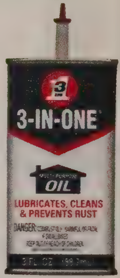
POISON
DICK SMITH ELECTRONICS
Electrical Lubricant

**Air Jet Spray**
The Dick Smith Electronics Air Jet Spray is ideal for the removal of dust and lint from all electrical and electronic equipment. Ideal for use on computers, keyboards, hi-fi's or cameras. The Air Jet Spray leaves no residue or condensation. 250g can.
N 1195 $19.95

DICK SMITH ELECTRONICS
Air Jet Spray

## LUBRICANTS

**3 in 1 Multipurpose Oil**
A handy multi-purpose oil which lubricates, cleans and prevents rust. Suits just about every place from the garage to the sewing room in the home to the office. 88.7ml can.
N 0102 $4.95


3-IN-ONE
OIL
LUBRICATES, CLEANS & PREVENTS RUST

**WD-40 Aerosol 255g**
Lubricates, displaces moisture, penetrates, protects and cleans! A favourite stand-by for drying out and protecting car ignition systems. 255g spray.
N 0104 $7.30

## CRC AEROSOLS

CRC
5.56
CRC
808 SILICONE SPRAY
CRC
2-26
CRC
SWITCH CLEANER LUBRICANT
CRC
LECTRA CLEAN
CRC
CO VIDEO CLEANER
CRC
CO CONTACT CLEANER
CRC
CONTACT 2000
CRC
FREEZE SPRAY
AIR BRUSH
CRC
CRC
CRC
CRC
CRC
CRC

### CRC 5.56

CRC 5.56 Multi-Purpose Product has superior penetrating power that breaks through rust and corrosion while it clears away scale and dirt. Eliminates the need for many disassembly operations. Lubricates for smooth action, and silences annoying squeaks and squeals. Protects metals against corrosion and displaces moisture to help start wet engines. 300g
N 1066 **$9.95**

### 808 Silicon Spray

Gives a durable, odourless film that revives, lubricates, waterproofs and protects. ideal for use on all metal, plastic, rubber, fabric, wood and painted surfaces. 330g
N 1064 **$14.95**

### CRC 2-26 Lubricant

Improves motor generator winding insulation resistance, protects against high humidity, improves electrical properties, displaces moisture, loosens corroded nuts, bolts, etc, lubricates and protects. 300g
N 1062 **$16.95**

### Switch Cleaner/Lubricant

Cleans away oil, grease, dust and atmospheric contaminants. 300g
N 1074 **$19.95**

### Lectra Clean

CRC Lectra Clean is an unique, scientifically formulated cleaner and degreaser that effectively removes moisture, grease, oil, wax, dirt and other contaminants from motors, parts and other electrical/mechanical equipment. No flash point. No fire point. 400g
N 1063 **$19.95**

### Video Cleaner

Great for cleaning audio and video heads. Non-staining and non-corrosive. Suitable for use on all components with no harmful effects. 150g
N 1057 **$22.95**

### CO Contact Cleaner

Plastic, safe formula harmless to most plastics. 100% free of CFCs. Evaporates rapidly and completely. 350g Flammable.
N 1072 **$24.95**

### CRC Contact 2000

CRC Contact 2000 Precision Electronic Cleaning Solution has been specially developed as an effective alternative to CF 113 based cleaners. CRC Contact 2000 is chemically inert, non flammable, has thermal stability with rapid and complete evaporation. Contains no lubricants, CFC's or Methyl Chloroform. CRC Contact 2000 removes light contaminants, atmospheric oils, dust and lint from precision electrical/electronic equipment. Leaves no residue to increase resistance. Safe on most plastics. 200g.
N 1089 **$29.95**

### CRC Freeze Spray

CRC Freeze Spray is a multi-purpose dry coolant spray for maintenance trouble-shooting and repair. Use it to isolate circuits or components while testing for heat-induced failures, to protect sensitive components from high temperatures during soldering and de-soldering, to aid in the assembly of tight fitting mechanical parts and help locate hair-line cracks in PC Boards. 300g
N 1239 **$24.95**

### Air Brush

Safely remove dust and lint from all delicate precision equipment. Safe to use and non-corrosive or flammable. Leaves no residue or condensation. 200g
N 1238 **$24.95**

## CLEANING PRODUCTS

DSE

### Antistatic Wet Wipes

DICK SMITH
ANTI STATIC WET WIPES

Ideal for cleaning computer monitors, keyboards, telephones and CDs. Wet Wipes with anti static properties help minimise dust collection and to maintain a clean work area. Great for static sensitive work areas. 90 antistatic wipes.
N 1240 **$9.95**

### Antibacterial Wipes

Anti-Bacterial
TELEPHONE WIPES

Disinfecting anti-bacterial wipes are suitable for use on telephones, faxes and anywhere else where hygiene is important. Contains 90 wipes with an antibacterial agent which kills harmful germs.
N 1241 **$9.95**

AF

### PC Cleaning Kit

Ideal for keeping your PC clean and tidy. Contains 5 Ultraclene wet/dry sachet pairs, keyboard cleaning card, 10 screenclene wet/dry sachet pairs, 3.5" cleaning diskette and a 20ml vial of cleaning fluid.
N 3105 **$29.80**

### 3.5" Floppy Disk Drive Cleaning Kit

3.5" HEAD CLEANING DISKETTE WITH CLEANING FLUID
DISK-CARE

Cleans the 3.5 inch floppy drive in your computer for dust and dirt. Helps prevent damaged disks, and makes your drive last longer.
X 3520 **$9.80**

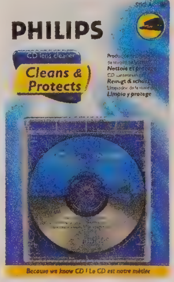
### AV Cleaning Fluid - Isopropyl Alcohol

DICK SMITH ELECTRONICS
Audio/Video Cleaning fluid

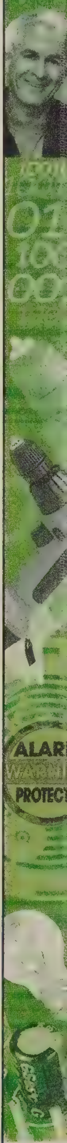
The technician's choice. 99% pure Isopropyl Alcohol in a handy 25ml dropper bottle. Suitable for manual use, and all wet-type cleaning systems.
C 7511 **$7.50**

PHILIPS

### CD Lens Cleaner



The safe and effective way to remove dust and debris from a CD player's laser optics.
C 7116 **$29.90**



# Tapes and Adhesives

## TAPES

### Coloured Insulation Tape

Hard-wearing coloured insulation tape. 19mm x 18m rolls.

Six colours to choose from:

| | | | |
|---|---|---|---|
| White | N 1358 | Blue | N 1364 |
| Red | N 1361 | Green | N 1383 |
| Black | N 1362 | | |

$1.95 ea

### PVC Insulation Tape

BLACK TAPE
The All Round Tape

18mm x 4.5m roll, Black
N 2372

$0.65

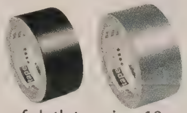
### PVC Insulation Tape Pack

Hard wearing insulation tape, 19mm x 4.5m rolls in assorted colours. Pack consists of 2 x red, blue, green, white and yellow. 6 rolls per pack.

N 2375

$3.25

### Waterproof Cloth Tape 10m Rolls



All purpose, waterproof cloth tape in a 10m roll. Can be used for duct sealing, heavy duty packaging, sports protection, etc.

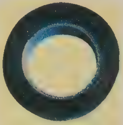
Black N 9398
Silver N 9408

$8.95 ea

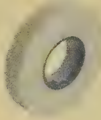
### Cling Tapes

If you want it to stay put, you need Cling! Our wide range has a Cling tape for every purpose.

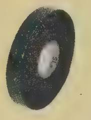
Amalgamating Tape
19mm x 2m Rolls.
N 1376 $9.95



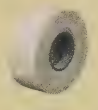
D/sided Indoor
12mm x 2 metres
N 1380 $5.95



D/sided Outdoor
12mm x 4 metres
N 1382 $11.95



D/sided Indoor
24mm x 2 metres
N 1384 $7.95

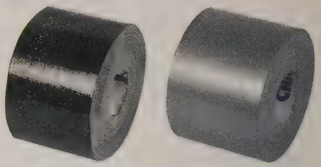


Waterproof Cloth Tape
24mm x 4.5 metres
N 1504
$3.95

Hook & Loop Strips
N 1524 $4.95

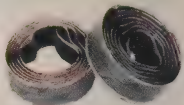
Lumi-Tape 12hr Glow
75mm x 75mm
N 1545 $7.95

### Cling U.S. Gaffa Tape



| Description | Cat No. | Price |
|---|---|---|
| Silver 20M | N 1432 | $16.95 |
| Black 20M | N 1430 | $16.95 |
| Black 40M | N 1431 | $29.80 |
| Silver 40M | N 1433 | $29.80 |

### Velcro Sticky Backs

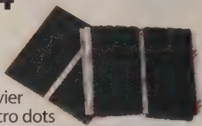


A non permanent way of securing an object to a surface. 2 x 1m, 20mm wide reusable (black).
N 1450 $14.95

### Velcro Handy Dots

A non permanent way of securing an object to a surface. Can be reused. 40 dots per pack (white).
N 1453 $14.95

### Velcro Heavy Duty 6 pieces



Designed for heavier objects, these Velcro dots are a non permanent way of securing an object to a surface. Can be reused. Black, 22 x 50mm.
N 1454 $7.95

## ADHESIVES

magic
INSTANT SUPER GLUE 5000

### Magic Super Glue 3ml

This super glue provides excellent strength for most materials and sets in 60 seconds. A fast curing contact Cyanoacrylate ($C_5H_5NO_2$) adhesive that can bond metal to metal, rubber to metal, preassembled plastic parts, plastic and semi-porous materials such as foam rubber, wood, cork and leather. Comes in 3ml tube.
N 1217 $6.40

magic
NEW
INSTANT SUPER GLUE BOTTLE AND BRUSH

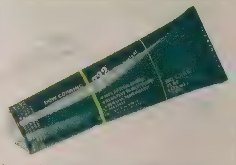
### Super Glue Bottle and Brush

Super Glue in a handy, easy to use bottle with a small brush for easy application. Sets in 10 seconds and used sparingly it provides excellent bond strength for most materials. 4 gram bottle.
N 1233 $8.30

### 5-Minute Epoxy

magic
5 MINUTE EPOXY GLUE
24ml NET

Bonds in 4-7 minutes, drying crystal clear to give a permanent bond. The twin syringe automatically dispenses equal amounts of resin and hardener, eliminating manual measuring. Maximum bond strength is achieved after 1 hour. 24ml easy-mix.
N 1228 $14.60



### Silastic 732RTV Tube 150g Clear

Adheres to seals and insulates rubber, wood, glass, metal plastic, etc providing a tough non-brittle seal or joint. Ease of use - one part, no mixing required, non slumping, non shrinking, in a 150g tube, clear.
N 1227 $12.70

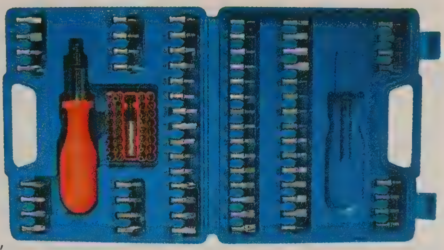
## 64-Piece Bit Set With Magnetic Bit Holder

This 64 piece bit set is packed in two soft plastic storage cases for ease of carrying. Includes a magnetic bit holder. Features Security Torx bits – Nos 8, 10, 15, 20, 25, 27, 30, 35, 40. Hex bits – 5/64, 3/32, 7/64, 1/8, 9/64, 5/32". Tri-wing bits – Nos 1, 2, 3, 4. Spanner bits – Nos 4, 6, 8, 10. Torx set bits – Nos 6, 8, 10. Hex bits – Nos 2, 2.5, 3, 4, 5, 6. Slotted bits – 3, 4, 5, 6, 7mm. Pozidrive bits – PZ0, PZ1, PZ2, PZ3. Square bits – S1, S2, S3, S4. Philips bits – Nos 0, 1, 2, 2 Drywall, 3, 4. Clutch bits – 1/8, 5/32, 3/16, 7/32, 1/4". Torx bits – Nos 6, 7, 8, 9, 10, 15, 20. Magnetised bit holder. Hex to Square adaptor.

T 4501

**$39**

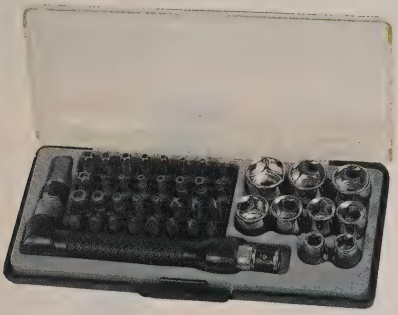
## 101-Piece Bit Set with Carry Case



Includes a hard plastic carry case, driver, handle and magnetised bit holder. Comes with 14 different shaped bits. Features flat blade – 3/32, 7/64, 1/8. 9/64, 5/32, 3/16, 7/32, 1/4, 9/32, 5/16". Phillips – #0, 1, 2, 2 Drywall, 3, 4. Square – S0, S1, S2, S3. Torx – 5, 5.5, 6, 7, 8, 9, 10, 15, 20, 25, 27, 30, 35, 40, 45, 50. Pozidrive – #0, 1, 2, 3, 4. Hex (SAE) – 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 9/32, 5/16". Hex (mm) – 1.5, 2, 2.5, 3, 4, 5, 5.5, 6, 7, 8mm. Clutch – 1/8, 5/32, 3/16, 1/4, 7/32. Security Torx – 8, 10, 15, 20, 25, 27, 30, 35, 40. Security Hex (mm) – 2, 2.5, 3, 4, 5, 6mm. Tri-wing – 1, 2, 3, 4. Spanner – 4, 6, 8, 10mm. Torque – 6, 8, 10mm.

T 4513

**$49<sup>95</sup>**

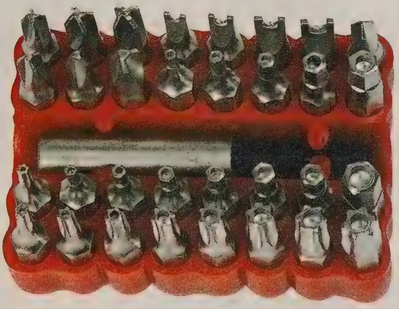


## Security Bit & Hex Nut Socket Set

This set consists of 32 security bits, 9 Hex sockets and a right angle driver handle, all packed into a plastic storage box with a clear flip-up lid. Each bit is made from tough #8660 steel alloy material. Security Torx - T8, T10, T15, T20, T25, T27, T30, T35, T40 Security Hex - Nos 2, 2.5, 3, 4, 5, 9. Tri-Wing Nos 1, 2, 3, 4 Spanner (slotted) bits - Nos 4, 6, 8, 10. Security Hex 5/64", 3/32", 7/64", 1/8", 9/64", 5/32" Torque bits - Nos 6, 8, 10. Hex nut sockets - 5, 6, 7, 8, 9, 10, 11, 12, 13mm.

T 4511

**$25<sup>30</sup>**

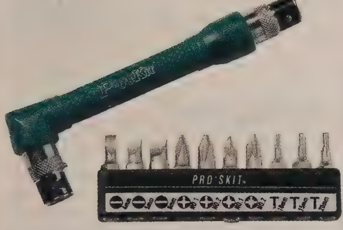


## 32-Piece Super Hard Security Bits

These security bits are made with an S2 grade high strength steel alloy (Chrome/Vanadium/ Molybdenum), and have an HRC (hardness) rating of 58-62 degrees. Due to their higher hardness rating, these S2 grade bits will provide much longer life, especially in heavier duty applications. Bits include Torx set bits (Nos 6, 8, 10), security Hex bits (2, 2.5, 3, 4, 5, 6mm), Tri-wing bits (Nos 1, 2, 3, 4), security Hex bits (5/64, 3/32, 7/64, 1/8, 9/64, 5/32"), spanner pin drive bits (4, 6, 8, 10mm) and a magnetised bit holder, all in a soft plastic case.

T 4514

**$36<sup>80</sup>**



## 10-Piece Bit Set & Right Angle Driver

Durable and great value. Supplied with 10 bits. Includes flat, Philips, Torx, and Pozidrive bits.

T 4507

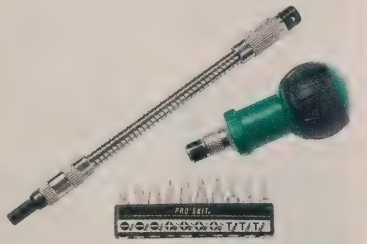
**$13<sup>40</sup>**

## 6-Pce Socket Set & Right Angle Driver

A choice of 6 sockets with a right angled driver. Includes 6, 7, 8, 9, 10, 11mm sockets.

T 4509

**$17<sup>60</sup>**



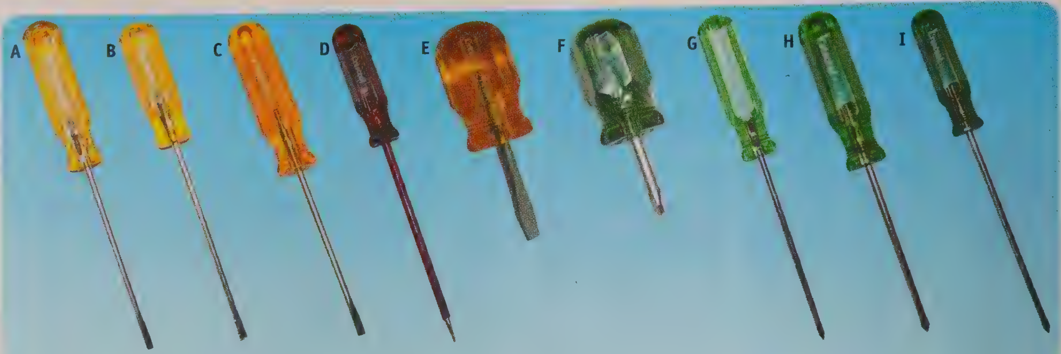
## 10-Piece Bit Set And Flexible Shaft

Featuring a range of 10 quality bits, with a flexible shaft to reach places others can't.

T 4508

**$19<sup>40</sup>**

## Screwdrivers



### Quality **Crescent** Screwdrivers

A screwdriver for every job. Each one has precision-ground sand-blasted tips for greater accuracy. Plus, they're made of rust-resistant tempered chrome-vanadium steel alloy and have moulded full-size oil and solvent-resistant handles.

| | Size (mm) | Description | Cat No. | Price |
|---|---|---|---|---|
| **A.** | 3 x 75 | Flat screwdriver with pocket clip | T 6302 | **$4.20** |
| **B.** | 4 x 100 | Flat blade | T 6304 | **$4.20** |
| **C.** | 5 x 100 | Flat blade | T 6306 | **$6.20** |
| **D.** | 5 x 150 | Insulated flat blade | T 6310 | **$7.40** |
| **E.** | 6 x 40 | Flat stubby screwdriver | T 6300 | **$6.40** |
| **F.** | 40 | Philips stubby #2 | T 6312 | **$9.60** |
| **G.** | 75 | Philips #0 | T 6314 | **$5.10** |
| **H.** | 100 | Philips #1 | T 6316 | **$8.20** |
| **I.** | 150 | Philips #2 | T 6318 | **$10.50** |

### Mini Screwdrivers

They're tiny! Just the thing for models, turntable cartridges etc. Approximately 30mm long shaft. Made in Japan.

**Flat Blade:** T 6010
**Philips:** T 6015

**$2.10 ea**

### Magnetic Screwdriver Set

A fully insulated, magnetic-head screwdriver set with six bits that store in the handle. With 4.5mm and 6mm flat blades, Nos 1 and 2 Philips head and Nos 1 and 2 Pozidrive.
T 4505

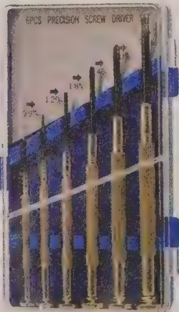
**$9.95**

**STANLEY**

### DynaGrip Ratchet Screwdriver

Tri-lobular textured handle for maximun torque with minimum effort. Stores six bits in the handle and four more in the wall mounting bracket. Supplied with Philips, Pozidrive, torx, flat blade and square tips.
T 4382

**$27.60**



### Precision Screwdriver Set

A well-made set with both Philips and flat-head screwdrivers. Each has a free-running top and they're presented in a handy plastic storage box with a transparent lid for easy identification. Contains - Philips head: 2.4 & 3mm. Flat Blade: 0.9mm, 1.2mm, 1.8mm & 3.5mm.
T 4360

**$2.50**

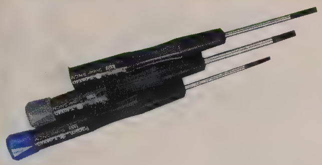
**STANLEY**

### Precision Screwdriver Set

Quality branded 'Stanley' screwdriver set. Rubber grip and swivel tip. Comes in a handy flip top case. Features: Rubberised ergonomic grip handle, Swivel top for ease of use, Flat Blade 1.4mm, 2.0mm, 2.4mm, 3.0mm, Philips Blade #0, #1, hardened tempered shafts.
T 4381

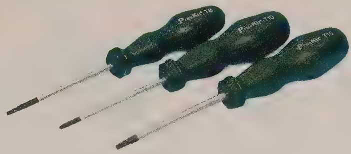
**$7.90**

## TORX SCREWDRIVERS



### Torx Screwdriver Set

A handy set of 3 small Torx screwdrivers with swivel-headed caps, and tough nickel chrome molybdenum steel shafts plus black oxided tips for greater durability. Sizes T6, T8, T10.
T 6138
**$16**

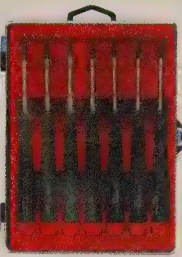


### Security Torx Screwdriver Set

Medium sized security torx screwdrivers with strong 60mm shafts, easy-to-grip moulded handles and black oxided tips. Set includes a wall-hanging holder for each screwdriver. Sizes T8, T10, and T15.
T 6139
**$22**

### 7-Piece Torx Screwdriver Set

A set of 7 Torx screwdrivers with strong 50mm alloy shafts and black oxided tips, all in a convenient plastic storage case. Sizes T6, T7, T8, T9, T10, T15, T20.
T 6140



**$28.80**

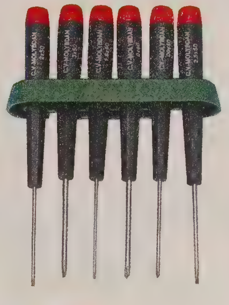
## ELECTRONIC & ELECTRICAL SCREWDRIVERS

### Electronics Screwdriver Set

Especially long, very fine screwdrivers that are ideal for getting into those tight spots you often find while working with electronics. With 6 screwdrivers including: Philips Head: 2.5 x 75mm, 3 x 100mm, 3 x 150mm. Flat Blade: 2.5 x 75mm, 3 x 100mm, 3 x 150mm.
T 3540
**$16.40**

### 6-Piece Electronics Screwdriver Set with Stand

Six screwdrivers and a handy stand. The set comprises 140mm extra-fine screwdrivers with free-running heads and specially-hardened tips for years of service. With flat blades; 1.5 x 50mm, 2 x 50mm, 2.5 x 50mm and 3 x 50mm. Philips head; No's 00 x 50mm and 0 x 50mm.
T 3510
**$19**



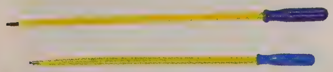
### 15-Piece Screwdriver Set

A handy collection of small screwdrivers for the electronics enthusiast. Includes 4 flat-blade drivers (1.4, 1.8, 2.4, 3.0mm), 3 Philips heads (No's 00, 0, 1), 3 hex bar drivers (1.5, 2.0, 2.5mm) and 5 Hex nut drivers (3.0, 3.5, 4.0, 4.5, 5.0mm). Complete with plastic storage case.
T 4370
**$21.60**

### Electrician's Screwdriver Set

Insulated to 1000 volts! This 8-piece screwdriver set includes a neon tester making it ideal for electricians or anyone working with high voltages. It contains: 6 x 150mm, 5 x 125mm, 4 x 100mm, 4 x 95mm, and 2.5 x 75mm, plus Phillips head (numbers 0, 1 and 2).
T 4390
**$21.90**

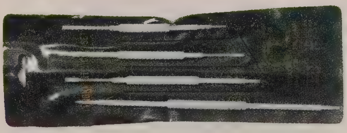
## ALIGNMENT TOOLS



### Screwdriver-Type Alignment Tools

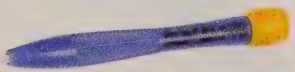
Plastic screwdrivers with steel spring tips. Suitable for adjusting trimmers and IF transformers.

| | | |
|---|---|---|
| 150mm Shaft | T 4522 | $4.20 |
| 200mm Shaft | T 4520 | $5.60 |



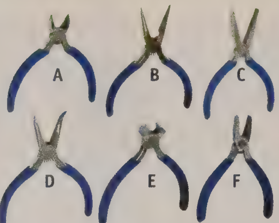
### 4 Piece Alignment Tool Set

Aligning your TV or receiver? No more searching for the right tool for the job! This versatile set designed especially for alignment applications comprises four general purpose plastic tools created to cover virtually all shapes and sizes of cores.
T 4540
**$7.60**



### Ceramic Adjuster/Alignment Tool

Perfect for computers, communication instruments, VCR, CD and other electronic devices. Made from a combination of high-tech materials with zirconia ceramic blades and anti-static handles. Non-conductive, non-magnetic, non-static and long-lasting.
2.0mm Flat Blade
T 5206
**$10.70**



### Spring-Loaded Pliers/Nippers

These polished steel pliers and nippers are captive spring-loaded, and have coated handles for ease of use.

| | | |
|---|---|---|
| **A.** | 115mm Diagonal Nippers | T 3330 |
| **B.** | 130mm Long Nose Pliers | T 3331 |
| **C.** | 130mm Flat Nose Pliers | T 3332 |
| **D.** | 125mm Bent Nose Pliers | T 3333 |
| **E.** | 110mm End Nippers | T 3334 |
| **F.** | 110mm Mini Combination Pliers | T 3335 |

**$9.95 ea**

### Micro-Precision Plier Set

A superbly built set of spring-loaded micro pliers/nippers with fully insulated handles. Made from quality stainless steel and comes with; 90mm cutting nippers, 100mm flat nose, 100mm round nose, 100mm bent nose and 100mm long nose pliers.

T 3575

**$38**

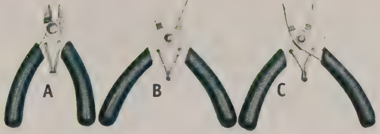
**STANLEY**

### MaxGrip Self-Adjusting Pliers

60mm jaw capacity with self adjusting mechanism to ensure maximum gripping power. Laminated steel construction for superior strength and bi-material handles for superior comfort.

T 3318

**$29.95**



### Stainless Steel Mini Pliers/Cutters

Precision spring loaded stainless steel pliers and nippers for working with printed circuit boards and small components. Each features insulated handles and quality construction.

| | | |
|---|---|---|
| A. | 90mm Diagonal Nipper | T 3310 |
| B. | 100mm Round Nose Plier | T 3312 |
| C. | 105mm Flat Nose Plier | T 3311 |

**$15.80 ea**

### Spring Loaded 165mm Large Combination Plier

High quality tool for the electronics enthusiast. This spring-loaded plier/nipper uses a specially heat-treated steel for excellent cutting capacity and durability and have comfortable handle insulation for easy long-term operation.

T 3303

**$14.20**

DICK SMITH
HOBBYIST TOOL SET

### 8-Piece Hobby Tool Kit

Bargain priced, this kit comes with 6 jeweller's screwdrivers (0.9, 1.2, 1.8, 2.4, 3 & 3.2mm flat head), quality 120mm long-nose pliers and 110mm side-cutters. The pliers are hardened and tempered with insulated handles.

T 3294

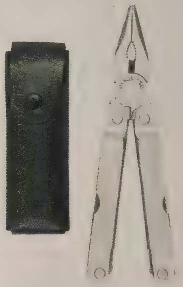
**$23.30**

### 5 Piece Plier/Cutter Set

A bargain-priced set of 5 spring-loaded, polished steel pliers and nippers for general hobby use. Includes 110mm end nipper, 115mm diagonal nipper, 125mm bent-nose, 130mm long-nose, and 135mm flat-nose pliers.

T 3580

**$27.60**



### Stainless Steel Pocket Workshop Pliers

Unfolds into heavy duty pliers, plus has a wide range of fold out items built into the handle, such as knives, screwdrivers, a saw, bottle opener and file. Strong stainless steel construction, comes with a belt-mounted storage case.

T 3309

**$19.95**

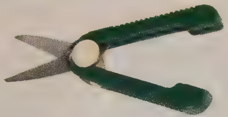
### 9-Piece Hobby Tool Kit

A great way to start building your tool collection. Includes 3 flat-blade screwdrivers (1.4, 1.8, and 2.4mm tips), 3 Phillips head screwdrivers (00, 0 and 1), stainless-steel side cutters and medium-nose pliers, and a 38mm magnifying glass, all in a handy storage case.

T 4605

**$34.40**

## WIRE STRIPPERS & CRIMPING TOOLS



### Retractable Safety Snips

Features corrosion-resistant stainless steel blades that can be retracted into the handle for safer, more convenient storage.

T 3299

**$3**

### Crimping Tool

Economical lightweight crimper for stripping various wire sizes from 0.75mm to 6mm, as well as crimping your cable quickly and reliably.

T 3525

**$16.50**

### Lug Crimping Tool

A handy tool when you're working with non-insulated terminals. Has strong metal jaws and cable cutter, plus handles 10-28AWG wire.

T 3528

**$21.40**

### Circlip Pliers - Internal / External

A simple tool for use with both internal and external retaining rings used around the home or car. Metal blades with PVC coated handles.

T 3522

**$10.80**

### Ratchet Coaxial Crimping Tool

Perfect for F, BNC, TNC, N, Teflon, Thinnet PVC and Fibre-Optic Connectors. Has an accurate ratchet drive and double jaws for single-action crimping.

T 3537

**$65.80**

### Professional Lug Crimping Tool

This robust lug crimper has a ratchet drive for accurate control, variable pressure adjustment and double jaws for single action crimping. Suits a wide variety of common lugs.

T 3535

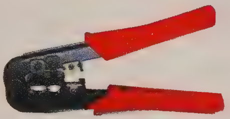
**$66**

### Phone Line Crimping Tool

Cuts, strips and crimps modular style telephone line cords. Suits 4-pin and 6-pin modular plugs.

T 2591

**$19.90**



### 6/8 Pin Modular Crimping Tool

Cuts and strips cables, and crimps various 6pin and 8pin modular connectors. Rugged metal construction for accurate crimping.

T 2920

**$51.80**

new for
2002

### Deluxe Modular Crimp Tool

State of the art heavy duty crimping tool suitable for use with 4 pin, 6 pin, and 8 pin modular connectors.

T 2925

**$169**

## WIRE STRIPPERS

### Economy Wire Strippers

Bargain priced wire strippers with large adjustable range. Hardened jaws for strength and durability.

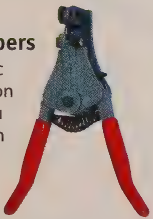
T 3630

**$7.60**

### Deluxe Wire Strippers

A completely automatic wire stripper - one action is all it takes. Allows you to strip wires from 1mm to 3.2mm in diameter.

T 3620

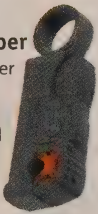


**$24.70**

### Rotary Coax Cable Stripper

This tool will strip both the outer jacket and inner insulation of coax in one easy operation. Suits common RG58/59/62 and RG6 cables. Comes with allen key for blade depth adjustment.

T 3640



**$25.80**

### Copper Wire Cutter - Large

Ideal for cutting multi-strand copper cables typically used in vehicles and solar powered installations. Suits our W-2302 through W-2308 OFC DC cables.

T 3322

**$22.50**

### Adjustable Wire Stripper

With self-adjusting mechanism that allows stripping of PVC insulation from 0.5mm² to 6mm² in size without damaging the conductor. The stripping length is adjustable from approx. 3mm to 25mm, and manual adjustment is available. With in-built cable cutter.

T 3622

**$28**

## Computer Tools

*When you're reparing or upgrading a computer, you need to make sure you have the right tools for the job. These PC servicing kits are ideal for the enthusiast or the computer technician, and each comes packed in an attractive zippered case.*

### 16 Piece Computer Servicing Tool Kit

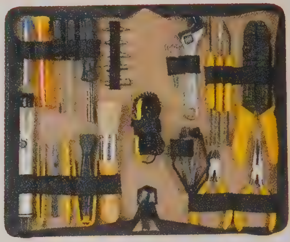
Includes:

- PLCC Extractor
- Wire Cutters
- Long-Nose Pliers
- Component Tube
- 1/4" Hex Driver
- 3/16" Hex Driver
- Driver Handle
- Double-ended Torx bit (T-10/T-15)
- IC Inserter (14 & 16 pin)
- Large Flat-Head Screwdriver - 75 x 5mm
- Small Flat-Head Screwdriver - 75 x 3mm
- Large Phillips-Head Screwdriver - No. 1
- Small Phillips-Head Screwdriver - No. 0
- Insulated Tweezers
- Pearl Catch
- IC Extractor

All in a zippered case

T 4843

**$59.95**



### 27 Piece Computer Servicing Tool Kit

Includes:

- PLCC Extractor
- Wire Cutters
- Long-Nose Pliers
- Component Tube
- Desoldering Pump
- Solder in Dispenser Tube
- IC Inserter (14 & 16 Pin)
- 1/4" Flat/No. 2 Phillips Screwdriver Bit
- 3/16" Flat/No. 1 Phillips Screwdriver Bit
- Small Flat-Head Screwdriver
- Small Phillips-Head Screwdriver
- Double-Ended Torx Bit (T-10/T-15)
- 1/4" Hex Driver Bit
- 3/16" Hex Driver Bit
- Driver Handle
- Small Insulated Tweezers
- Needle-nose Tweezers
- Pearl Catch
- IC Extractor
- Cleaning Brush
- Anti-static Wrist Strap
- 150mm Shifting Spanner
- Crimping Tool
- Soldering Aid Set
- Heat-Sink Clip

All in a zippered case

T 4852

**$134**

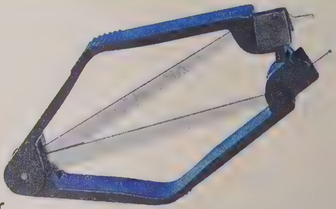
## EXTRACTION TOOLS

### IC Extraction Tool

Works with all DIL ICs and ensures no bent pins and no static damage. Operates like a pair of hooked tweezers.

T 4650

**$5.30**



### PLCC Extractor

Every computer tech needs one! The extractor makes the job of removing plastic-leaded chips and upgrading computer processors a breeze.

T 4655

**$14.60**

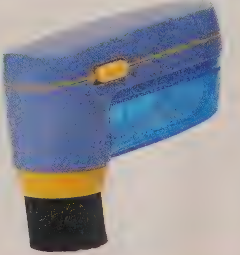
## COMPUTER VACUUMS

### Handheld Mini Vacuum Cleaner

Great for cleaning keyboards, Hi-Fi equipment & monitors. This Japanese unit's brush/tube head gently sweeps dust from the surface being cleaned before vacuuming it away. Requires 2 x "AA" batteries.

T 1705

**$39**

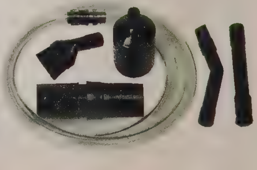


### Vacuum Cleaner Accessory Kit

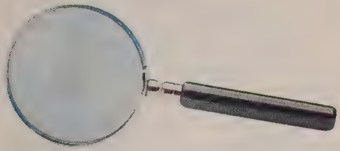
This product is a set of small universally fitting pieces to suit most vacuum cleaners, to enable cleaning of small parts like computer keyboards and phones etc.

T 1710

**$19.50**



## MAGNIFIERS



### Round Magnifying Glass

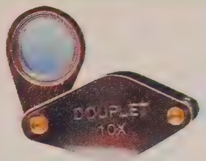
A handy 63mm diameter magnifying glass with 2.5x magnification and a quality glass lens. Great for checking values on small components such as resistors.

T 4590 **$10.20**

### Magnifying Glass with Tweezers

A handy tool for use where small items need to be viewed and moved. Consists of a 36mm glass lens magnifying glass with 4x magnification together with a pair of stainless steel tweezers.

T 4591 **$11.95**



### Pocket Magnifier

Ideal for checking surface mount components, cracks in PCB tracks, or quality of solder joints. This well-made pocket magnifier with 15mm diameter glass lens provides 10x magnification, and slides back into its plated brass case for protection after use.

T 4595 **$22.50**

### Adjustable Magnifier & Stand

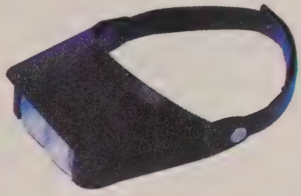
The perfect way to magnify items when you need both hands free. Consists of a large 87mm magnifying glass attached to a flexible gooseneck. Includes heavy die-cast metal base.

T 4592 **$36.80**

### Illuminated Pocket Magnifier

Great for checking components, PCBs, and other items where a magnified view is required. Features a large 26mm glass lens, 10 x magnification, carry pouch, and a pre-focussed globe to provide lighting of the viewed item. Requires 2 x "AA" batteries.

T 4597 **$28.70**

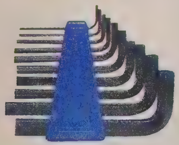


### Visor Magnifier

This lightweight visor simply slips onto your head and you flip it down when a magnified view is required. Has selectable 2.2x and 3.3x magnification.

T 4593 **$36.20**

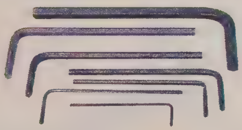
## ALLEN KEYS & SPANNERS



### 10-Piece Allen Key Set

A handy metric Allen key set that comes complete with a plastic clip to help keep them together and organised. Contains 1.5mm, 2mm, 2.5mm, 3mm, 4mm, 5mm, 5.5mm, 6mm, 8mm & 10mm Allen keys.

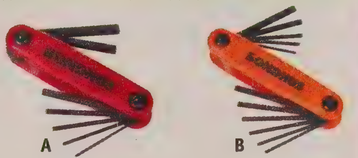
T 3545 **$6.95**



### Allen Key Set

This set is a must if working on European and Japanese equipment that uses Allen screws. The seven gunmetal-finished Allen keys come in a plastic wallet in sizes 0.89mm, 1.27mm, 1.5mm, 2mm, 2.5mm, 3mm and 4mm. Made in Japan.

T 5080 **$9.20**



### Folding Allen Key Sets

High quality industrial strength folding tool sets with individually rotatable blades. Fibre reinforced resin handles. 40% stronger than steel.

| | | |
|---|---|---|
| **A** | T 6148 Metric | **$18.70** |
| **B** | T 6149 Imperial/Metric | **$24.30** |

### 10-Piece Mini Spanner Set

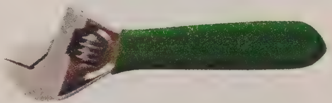
A handy set of quality metric spanners covering most sizes between 4mm and 11mm. Suitable for light/ medium duty uses.

T 4550 **$19.95**

### 5-Piece Reversible Ratchet Set

A set of handy offset box-end wrenches that provide reversible end travel through a simple lever adjustment. Sizes covered are 5.5, 6, 7, 8, 10, 11, 12, 13, 14 and 17mm.

T 4560 **$35.80**



### 100mm Shifting Spanner

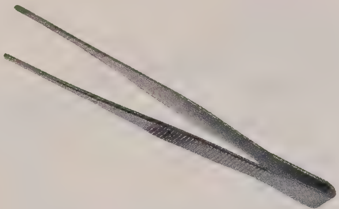
For those small and tricky jobs, use this mini 100mm shifting spanner. Easy to carry in your top pocket, this solid metal shifting spanner has a comfortable plastic-dipped handle.

T 3304 **$8.50**

## SPRING HOOK, TWEEZERS & FORCEPS

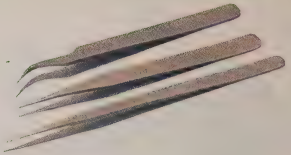
### Spring Hook Tool

A handy tool for working with springs or devices with small openings that require movement within a tight space.
T 4532
$\$7^{40}$



### Serrated Jaw Tweezers

Fine-point tweezers for holding small nuts, components, delicate instruments, wires etc. Made in Japan.
T 4630
$\$5^{50}$

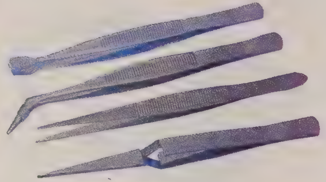


### Stainless Steel Tweezers

These high-grade stainless steel tweezers are ideal for use in the electronics and precision engineering industries as they are non-magnetic, acid-resistant and have finely polished surfaces.

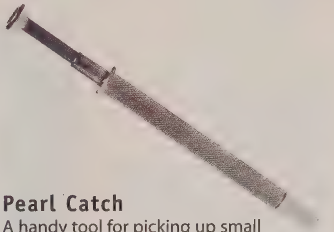
| | |
|---|---|
| Fine Point | T 4632 |
| Long Nose | T 4634 |
| Curved Nose | T 4636 |

$\$6^{4}$



### Universal Tweezer Set

Great value! Four different 110mm tweezers in one pack. With fine-point blades, flat blades, curved blades and even reverse action (Squeeze to release).
T 4625
$\$14^{20}$



### Pearl Catch

A handy tool for picking up small components or hardware items from hard to reach areas (e.g. the bottom of a completed project). Uses 4 springy splines to hold an item. All metal construction.
T 5117
$\$7^{40}$

### 6 inch Straight Forceps

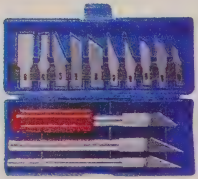
Quality stainless steel locking forceps to hold leads or components in place while you work. Forceps have three locking teet providing variable pressure and coated handles for comfort.
T 4639
$\$19^{4}$

## KNIVES

STANLEY

### Utility Knife

You'll never have to put up with blunt blades again. This handy knife contains a snap-off replaceable blade and comes with a safety blade lock plus a comfortably-sized grip for accurate work.
T 3615
$\$2$



### Precision Knife Set

This 13-piece Precision Knife Set comes with three quality (varying size) knife handles and 10 spare blades in a variety of shapes and sizes. Comes in a handy plastic storage case.
T 3618
$\$19^{70}$

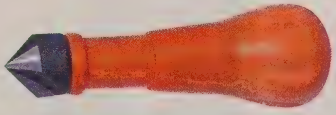
## GENERAL TOOLS

### Tapered Reamer

The perfect tool for shaping and enlarging holes in thin metals, plastics and wood. Great for chassis bashers - gives you exact-sized holes. Tapers from 4mm to 20mm and is made from high-quality treated steel. Made in Japan.
T 4920
$\$28^{40}$

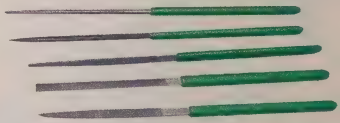
### Nibbling Tool

Allows you to cut almost any shape or size of hole in sheet steel to 0.6mm thick or light alloy to 1.5mm thick. It follows curved or straight lines with ease and is also great for many plastics.
T 4945
$\$25$



### Countersink Tool

Makes countersinking screws easy! Simply drill the hole, insert the countersink tool and turn it. It's got a hardened blade for a long, trouble-free life.
T 4925
$\$8^{20}$



### Needle File Set

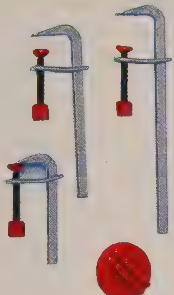
A set of five needle files with a great selection of shapes for just about any job. The 90mm insulated handles allow you to get a good grip, while the 75mm blades give you plenty of length. Comes in a handy plastic storage pouch.
T 3230
$\$26^{20}$

## CLAMPS & VICES

### Hobby 'F' Clamp Set

Just like a spare set of hands for the workbench or toolbox! Includes three sizes: 20 x 120mm, 20 x 80mm and 20 x 40mm and all fit to the 38mm magnetic base included in the pack.

T 4750 **$10.70**



### Pin Vice

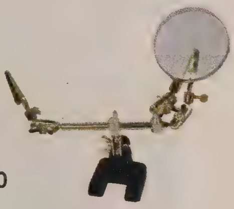
A quality pin vice complete with 2 internal collars covering the 0 to 3.2mm diameter range. Ideal for where hand drilling of delicate PCBs or cases is required. Drill bits not supplied.

T 5115 **$21.20**

### PCB Work Station

It's bargain priced and makes working on PCBs much easier! Includes a heavy cast iron base for added stability, a magnifying glass, and alligator clips to hold the PCB still while you're working on it.

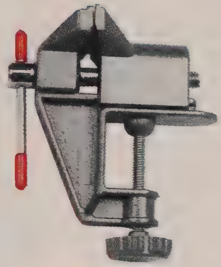
T 5715 **$15.50**



### Hobby Mini Vice

Sturdy, light-weight and portable, it fits easily to workbench or table (anything up to about 25mm thick). Made from die-cast aluminium alloy for strength and durability, with jaws that are 60mm wide and open to 50mm.

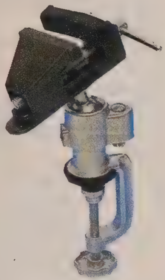
T 4747 **$22.30**



### Multi-Angle Metal Vice

Beautifully crafted metal vice suitable for a variety of hobby uses. It mounts to a bench up to 50mm thick, has jaws with rubber covers 75mm wide that open apart up to 55mm. Made from diecast aluminium alloy.

T 4742 **$49.70**

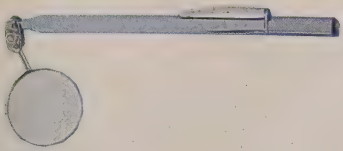


### High Quality 3" Swivel Vice

A very high-quality mini vice that can be bolted or suction-fixed to the benchtop. It's made from high-quality cast alloy and has steel jaws with removable rubber pads. The ingenious swivel action allows you to mount it in almost any position.

T 4745 **$62.90**

## GENERAL TOOLS



### Mirror & Pick-Up Tool

Great when you're working in tight places. The inspection mirror with telescopic arm and swivel head allows you to get in there and see what's happening. The other end of the telescopic arm doubles as a magnetic pick-up tool.

T 4525 **$9.95**

### Eye Glass Repair Kit

Any one with glasses will appreciate this novel gift. The eyeglass repair kit has 2 sized hinge screws, mini screwdriver, nosepads, head hugger rings and comes in a convenient pocket sized carry case.

T 4596 **$5.50**

### Pro Level Electrical Spirit Level

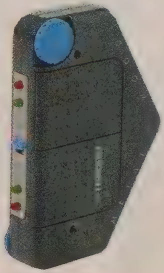
Provides both visible and audible indicators of whether a surface is level. Also includes a fold-down ruler with angle readouts and locking knob.

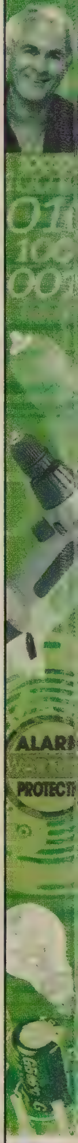
T 1992 **$32.60**

### Stud & Metal Finder

Two tools in one! This versatile tool is just the thing for locating joists, battens and rafters through walls. It can also be used for detecting live/dead cables, pipes and mains when installing pictures, shelves or ceiling fans.

T 1990 **$53.80**





# *Drills & Engravers*

## 14.4V Cordless Drill

This economy 14.4V Cordless drill features variable electronically controlled speed from 0 to 550RPM, forward/reverse switching with a lock off position, a powerful motor and 6 torque settings.
T 4814 **$49.80**

## Hobby Super Drill Set

A lightweight tool package for drilling, engraving, routing, shaping, sanding or milling. The main body features a strong 12V DC motor plus quick change chuck for easy attachment of various size bits. Standard accessories supplied include 5 high speed drill bits, 5 brass collets (for 0.5, 1.0, 1.5, 2.4 and 3.0mm bits), 4 grindstones with arbor, 1 thin grinding wheel and a 240V mains plugpack.
T 4761 **$84**

| | | |
|---|---|---|
| Accessories Kit (5pc drills, 4pc collets, 4pc grindstones, 1pc grinding wheel) | T 4774 | **$31.70** |
| 12pc High Speed Drill Bits (0.5, 0.8, 1.0, 1.2, 1.5mm) | T 4775 | **$14.95** |

## Combination Drill Set

A handy selection of drill bits, screwdriver bits, and rawl plugs, all stored in a neat plastic carry case. Includes: 2, 3, 4, 5, 6, 8, and 10mm HSS drills, 4, 5, 6, and 8mm masonry drills, 4, 5, 6, 8, and 10mm drills. Selection of Flathead, Philips, and Pozidrive bits (6pcs total). Magnetic bit holder. Selection of 4 sizes of plastic rawl plugs (over 250pcs).
T 5110 **$14.30**

## Diamond Tipped Mini Engraver

This battery operated engraver uses a diamond coated tip which is capable of engraving almost any surface. Connects to a 4 x "AA" size battery holder via a flexible cord and plug. The battery holder can be clipped to your belt to keep it out of the way.
T 4776 **$39**

## Heavy Duty Cordless Drill

This quality cordless drill features variable electronically controlled speed from 0 to 650RPM, forward/reverse switching with a lock off position, a powerful Johnson motor, and 6 torque settings (up to a massive 12Nm). Includes a high quality 14.4 volt 1.3 Ah NiCad battery pack using quality SAFT cells, Jacobs 10mm keyless chuck, 3-5 hour charging cradle, approved AC adaptor, 2 screwdriver bits and a handy plastic storage case. 2 year warranty.
T 4810 **$119**

**14.4V NiCad Battery** T 4812 **$75**

ARLEC
SUPER TOOL

## ARLEC Super Tool

Great for sanding, polishing, drilling, engraving, milling etc! Includes wire brush, milling cutters, grinding wheel, high speed drills, chuck collets, eraser sticks and mains plug pack adaptor. Complete with carry case.
T 4754 **$107**

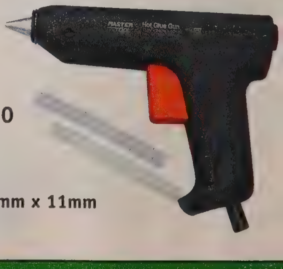
**Super Tool Accessories**

| | | |
|---|---|---|
| 4pc Drill Bit Kit | T 4756 | **$16.80** |
| 3pc Engrave/Mill Kit | T 4764 | **$24.95** |
| 3pc Grindstone Kit | T 4758 | **$29.95** |
| 6pc Slitting Saw Kit | T 4766 | **$33.20** |
| 1pc Diamond Bit Engraving Kit | T 4769 | **$35.80** |

## Keyless Drill Chuck

This snap-out keyless chuck can be used with various cordless screwdrivers that normally take a Hex screwdriver bit. Can also be used for PCB drills (down to 0.5mm) that are normally too small for a standard drill chuck.
T 4743 **$10.60**

## Hot-Melt Glue Gun



A mains powered 40W glue gun with convenient trigger controlled glue feed. Takes 11mm diameter glue sticks.
T 1410 **$30.70**
**Limited stock**

**Pack of 6 Hot Glue Sticks 100mm x 11mm**
T 1421 $3.95

## TOOL CASES

### Aluminium Frame Tool Case - Medium

Keep your precious equipment safe with this sturdy lockable tool case. Ideal for safely carrying sensitive test equipment, cameras, notebook computers etc as well as standard electronic tools. Padded interior dividers and removable tool holder are provided for easy partitioning of the storage space. Size: 320mm (L) x 230mm(W) x 150mm(H). (Tools not included)

T 4858

**$72**

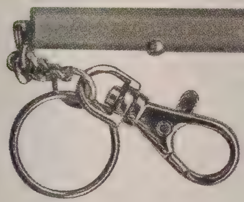
### Aluminium Frame Tool Case

A rugged lockable serviceman's case with aluminium frame that's suitable for carrying sensitive test equipment, cameras, notebook computers etc. as well as standard electronics tools. It's supplied with an internal removable tool holder, 5 adjustable padded dividers and a shoulder carry strap. Size: 480mm(L) x 326mm(W) x 150mm(H). (Tools not included)

T 4856

**$\$79^{95}$**

## LASER POINTERS

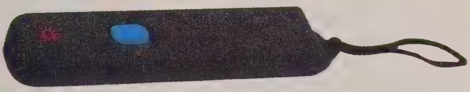


### Keychain Miniature Laser Pointer

Amazing low price! Now you can keep a laser pointer in your pocket or clipped to your belt for those unexpected times when you have to point out something that's not within reach. Incredibly small, this 1mW laser pointer is contained in a tough metal housing just 9mm in diameter and less than 60mm long. Includes keychain with springclip for convenience storage. Powered by 3 watch style batteries (included).

T 2903

**$\$29^{80}$**

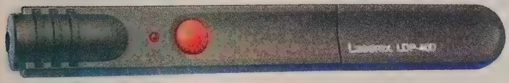


### Compact Laser Pointer

Simple to use and highly affordable, this compact laser pointer features a bright 1mW laser diode to indicate objects of interest to 50m away (indoors). Great for use at meetings, product presentations, seminars and lectures as well as in retail and industrial display areas. Measures 125mm(L) x 5mm(W) x 15mm(H). Supplied with a handy carry strap and 2 "AAA" batteries.

T 2902

**$\$54^{95}$**

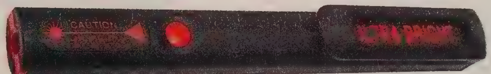


### Ergonomic Laser Pointer

Need to point out detail on an out-of-reach object? At the push of a button the Laserex LPD 400 will shine a small red dot on objects up to 50m away (indoors) through the use of a thin, low power laser beam. It comes in a stylish sculptured case that's easy to hold for long periods. Fits the hand snugly. Requires 3 x N size or 2 x AAA size batteries. Specifications: Laser diode < 1mW max at 670nm+/-10nm. Complies with AS2211-1997 (Class 2 laser product). Caution: Do not stare into beam.

T 2912

**$79**



### Ultra-Bright Laser Pointer

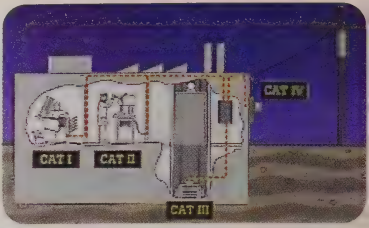
The Laserex LDP-300UB is a handheld laser pointer that features an "ultra-bright" 1mW laser module with 635nm frequency providing up to 250 metres visible range indoors. Built for heavy-duty uses with a diecast internal frame covered by a polycarbonate shell. Uses either 2 x AAA or 3 x N size batteries. Caution: Do not stare into beam.

T 2909

**$134**

# Fluke Multimeters

**What the IEC 1010-1 safety rating means to you.** As electrical systems grow more and more complex, spikes, transients, surges and sudden overvoltage events become more common. These can trigger a sequence of events that may lead to serious injury. Which is why test equipment must be designed to protect people who work in this high-voltage high-current environment. The IEC 1010 safety standard was established to define four overvoltage categories (CATI, CAT II, CATIII and CAT IV) based on the magnitude of danger from transient impulses. The Fluke 70 Series III DMMs have been designed to meet the new IEC-1010 standards. More importantly, they have been approved by CSA as actually making these standards. Which means they are designed to protect you against transients in three-phase distribution systems, including • Single-phase commercial lighting • Equipment in fixed installations, such as switch gear and polyphase motors • Bus and feeder in industrial plants • Lighting systems in larger buildings • Appliance outlets with short connections to the service entrance.



## **FLUKE** 19 Digital Multimeter

Introducing a new affordable product with the features and accuracy found in more expensive multimeters. The Fluke 19 Digital multimeters offers Fluke's legendary reliability, safety and accuracy in a rugged, shock-absorbing overmolded case.

- Safety Ratings Cat I 1000V,Cat II 600V, Cat III 300V
- Auto range
- Continuity beeper
- MIN/MAX record mode
- DC Volts 0V to 1000V
- DC Current 10A (20A for 30 seconds)
- Ohms 0 to 40MOhm
- Diode test 3,000 V
- Frequency 1 Hz to 200kHz
- Automatic touch hold
- Duty cycle
- Stand by mode
- AC Volts 0mV to 1000V
- AC current 0 to 10A (20A for 30 seconds)
- Conductance 40nS
- Capacitance 1nF to 5uF
- 12 month warranty

Q 1719

**$239**

FLUKE 19 MULTIMETER
0004

new for 2002

## **FLUKE**
## 111 Digital Multimeter

This little Cat III 600V meter packs in a huge range of features – True-rms AC voltage and current measurement, 6000 count display, frequency, capacitance and resistance capability, plus a Min/Max/Average feature, all in a compact lightweight casing.

Q 3010

**$380**

## **FLUKE**
## 73 Series III Multimeter

Default autorange mode; Automatic touch-hold to capture stable non-zero readings; Meets IEC 1010 safety standards for 600 Volt CAT II applications; Protected from overvoltage transients to 4kV per IEC 1010-1; 3200 display counts; Analogue bargraph; Fused current inputs; DCV: 600 Volts max, 0.3% accuracy; ACV: 600 Volts max, 2% accuracy; DC/AC current: 10 Amps; Resistance: 32MOhm, 0.5% accuracy; All in a rugged overmoulded case.

**LIMITED LIFETIME WARRANTY**

Q 1703

**$379**

FLUKE 73 MULTIMETER
600

new for 2002

## **FLUKE**
## 175 Digital Multimeter

Feature packed multimeter capable of measuring AC/DC voltage and current, resistance, capacitance and frequency. It has a 6000 count display plus Min/Max/Average recording, True-RMS voltage and current measurements, Auto or Manual Hold and CAT IV 600V/CAT III 1000V safety ratings.

Q 1732

**$568**

new for 2002

## **FLUKE**
## 189 Digital Multimeter

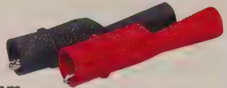
The new Fluke 189 DMM delivers breakghrough performance plus a wealth of new features to help make your job easier. 50,000 count resolution plus PC compatibility (optional) or stand alone datalogging, multiple reading display with bargraph and two level backlight.

Q 1736

**$1366**

FLUKE

### AC70A Alligator Clips



Gold-plated, beryllium-copper, spring contacts accept probe tips from 1.93mm to 2.13mm. Standard 8mm jaw opening. 600V, 10A rating. One red, one black.

Q 1660 **$24.95**

FLUKE

### TL75 48" Hardpoint Test Leads

Super strong tips and integral strain relief provide extended service life. Safety-shrouded, right-angled inputs. Standard on all Fluke DMM models (except 88).

Q 1650 **$34**

FLUKE

### AC20 Industrial Test Clips

Safety-grip, spring-loaded alligator clips with a wide 20mm jaw opening. 1000V per IEC 1010, Overvoltage Category III (Heavy Industrial Rating), 10A rating. One red, one black.

Q 1659 **$65.60**

## ACCESSORIES

| | | |
|---|---|---|
| Fluke Holster C10 Yellow Suits Series 10, 11, 12 | Q 1614 | $34.80 |
| Fluke Carry Case Suits Series 7, 10, 11, 12 | Q 1616 | $42 |
| Fluke Holster C70Y Yellow | Q 1663 | $54.95 |
| Fluke Test Leads TL20 Industrial | Q 1652 | $138 |
| Fluke Test Leads TL22 R/A | Q 1653 | $54 |
| Fluke Probes TP80 Electronic | Q 1655 | $66 |
| Fluke AC80 Hook Style Test Clips | Q 1661 | $57.60 |

## FLUKE FUSES

Replacement fuses for your quality FLUKE meters.

| Suits | Description | Cat No | Price |
|---|---|---|---|
| Fluke 73,75,77 & 87 | (KTK 15) 15A/600V | P 7884 | $24.95 |
| Fluke 87 | (BBS-1) 1A/600V | P 7882 | $9.95 |
| Fluke 75 II & 77 II | (FSF3) 3A/600V | P 7883 | $9.40 |
| Fluke 75 & 77 | (GDA-630) 630mA/250V | P 7880 | $4.95 |
| Fluke 19 | ((943-188) 11A/1000V | P 7885 | $24.95 |

## BATTERY TESTERS

### Multi-Purpose Battery Tester

STANDARD ST-9901
BATTERY, BULB, FUSE
CONTINUITY TESTER

A combination battery, fuse, bulb and continuity tester, Tests AAA, A, C, D, 9V and button batteries. Indicates the condition of fuses and bulbs. Continuity tester - beeper sounds continuously if resistance is less than 20kOhm.

Q 1009 **$19.95**

### Battery Tester

Tests most sizes. Save money and batteries with this compact and easy-to-use 15-range battery tester. In an instant you'll know whether a battery is fresh or flat. With an impact-resistant case, it can take the rough and tumble of just about any tool box! It's self-powered so it never needs batteries.

Q 1001 **$22.50**

## ANALOGUE MULTIMETERS

### Multimeter 12 Range 10KOhm/V

Dick Smith Electronics
Q 1006

- Safety recessed test lead connections
- Inbuilt diode & fuse protected
- Mirrored scale
- Off position for meter protection

**Ranges:**

| | |
|---|---|
| DC V: | 15, 150, 500V |
| AC V: | 15, 150, 500V |
| DC Current: | 50mA, 250mA |
| Resistance: | 100k, 10M |
| Battery Check: | 1.5V, 9V |

Q 1006 **$29.95**

### Multimeter 9 Range 2KOhm/Volt

- Diode and fuse protection
- 19 ranges plus dB
- Continuity checker
- 20K/Volt sensitivity
- Mirrored scale
- Adjustable carry handle/stand
- Recessed terminals for added safety

**Ranges:**

| | |
|---|---|
| DC V: | 2.5, 10, 50, 250, 1000V |
| AC V: | 10, 50, 250, 1000V |
| DC Current: | 5mA, 50mA, 500mA & 10A |
| Resistance: | 10K, 100K, 10Mohms |
| Battery Check: | 1.5V, 9V |
| dB: | -8dB to +62dB |

Q 1025 **$53.70**

## 19 RANGE DIGITAL MULTIMETER WITH DATA HOLD

Ideal as a first multimeter, this stylish, ergonomically designed unit is great for the home, boat or car. It features a rotary dial for range selection and a data hold button for added operating flexibility. This meter also includes options for testing diodes and transistor hFE.

| Specifications | |
|---|---|
| DC Voltage | 200mV, 2000mV, 20V, 200V, 500V |
| AC Voltage | 200V,500V |
| DC Current | 200uA, 2mA, 20mA, 200mA, 10A |
| Resistance | 200 ohm, 2000 ohm, 20k ohm, 200k ohm, 20M ohm |
| Diode Test | Included |
| Transistor Test | Measures hFE |
| Display | 3.5 digit LCD display, 1999 count |
| Protection | 300mA fused on mA input, 10A input unfused |

**Features**
- Data Hold Function
- Low Battery Indicator
- Transistor Tester
- Diode Tester

DICK SMITH ELECTRONICS Q 1418
0.00
HOLD
10A MAX
VΩmA
COM

**19 Range Digital Multimeter with Data hold**
Q 1418

**$36.90**

## 19 RANGE MULTIMETER WITH BUZZER

Featuring the same ergonomic styling as our Q1418 model, this unit is great for the person on the move or for use as a student meter. For help in testing audio circuits, it can provide a 50Hz square wave signal and it also includes a buzzer for use when testing continuity.

| Specifications | |
|---|---|
| DC Voltage | 200mV, 2000mV, 20V, 200V, 500V |
| AC Voltage | 200V,500V |
| DC Current | 200uA, 2mA, 20mA, 200mA, 10A |
| Resistance | 200 ohm, 2000 ohm, 20k ohm, 200k ohm, 20M ohm |
| Continuity Beeper | Included |
| Diode Test | Included |
| Transistor Test | Measures hFE |
| Square Wave Output | 50Hz |
| Display | 3.5 digit LCD display, 1999 count |
| Protection | 300mA fused on mA input, 10A input unfused |

**Features**
- Data Hold Function
- Continuity Tester
- 50Hz Square Wave Output
- Low Battery Indicator
- Transistor Tester
- Diode Tester

0.0.0
OFF
HOLD
20A MAX
COM

**19 Range Multimeter with Buzzer**
Q 1417

**$41.50**

## 32 RANGE DIGITAL MULTIMETER

A solid 3.5 digit handheld multimeter that builds on the features provided by our entry level meters. Capable of measuring AC current up to 20A, it also features a resolution of up to 0.0luA for small currents. Auto zeroing, auto polarity selection indication, over range and low battery warnings.

| Specifications | |
|---|---|
| DC Voltage | 200mV, 2000mV, 20V, 200V, 1000V |
| AC Voltage | 200mV, 2000mV, 20V, 200V, 700V |
| DC Current | 20uA, 200uA, 2mA, 20mA, 200mA, 2A, 20A |
| AC Current | 20uA, 200uA, 2mA, 20mA, 200mA, 2A, 20A |
| Resistance | 200 ohm, 2000 ohm, 20k ohm, 200k ohm, 2M ohm, 20M ohm |
| Continuity Beeper | Included |
| Diode Test | Included |
| Transistor Test | Measures hFE |
| Display | 3.5 digit LCD display, 1999 count |
| Protection | 2A fused on current inputs except 20A (unfused) |

**Features**
- 20A DC Current Range
- Continuity Tester
- Low Battery Indicator
- Transistor Tester
- Diode Tester

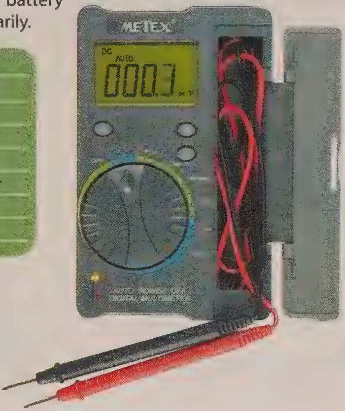
-0.0.0
20A
A
COM
V/Ω

**32 Range Digital Multimeter**
Q 1427

**$58.70**

## DSE POCKET DIGITAL MULTIMETER

This compact unit is our smallest auto-ranging multimeter and is the perfect meter for the toolbox or the car – the built in test leads make sure it stays tidy. It features a 4000 count backlit display with overrange and low battery indication, while the auto power off function ensures you won't drain the battery unnecessarily.



**Specifications**

| | |
|---|---|
| DC Voltage | 400mV, 4000mV, 40V, 400V |
| AC Voltage | 4V, 40V, 400V |
| DC Current | 400uA - 2mA, 40mA - 200mA (autoranging) |
| AC Current | 400uA - 2mA, 40mA - 200mA (autoranging) |
| Resistance | 400 ohm, 4k ohm, 40k ohm, 400k ohm, 4M ohm, 40M ohm |
| Capacitance | 40nF, 400nF, 4μF, 40μF |
| Frequency | 10Hz - 10 MHz (autoranging) |
| Duty Cycle | 100% |
| Continuity Beeper | Included |
| Diode Test | Included |
| Battery Tester | 1.5V battery check |
| Display | 3.75 digit LCD display, 3999 count |
| Protection | 800mA fuse on current input |

**Features**

- Built-in Test Leads
- Data Hold
- Continuity Tester
- Battery Tester
- Low Battery Indicator
- Auto Power Off
- Diode Tester

**DSE Pocket Digital Multimeter**
Q 1569

$63.40

## AUTORANGING DIGITAL MULTIMETER

Offering outstanding value for money, this meter packs a huge range of features into a stylish compact case. Auto-ranging for ease of use, it is capable of measuring voltage, current, resistance, capacitance, frequency, duty cycle and temperature, using the included K-type thermocuouple probel. The perfect meter for schools, mobile technicians and the more advanced enthusiast.

STANDARD
0.007

**Specifications**

| | |
|---|---|
| DC Voltage | 400mV, 4000mV, 40V, 400V, 600V |
| AC Voltage | 400mV, 4000mV, 40V. 400V, 600V |
| DC Current | 400uA, 4000uA, 40mA, 400mA, 10A |
| AC Current | 400uA, 4000uA, 40mA, 400mA, 10A |
| Resistance | 400 ohm, 4k ohm, 40k ohm, 400k ohm, 4M ohm, 40M ohm |
| Capacitance | 4nF, 40nF, 400nF, 40μF, 200μF |
| Temperature | -20ºC to +1000ºC |
| Frequency | 9.999Hz, 99.99Hz, 999.9Hz, 9.999kHz, 99.99kHz |
| Duty Cycle | 0.1% - 99.9% |
| Continuity Beeper | Included |
| Diode Test | Included |
| Transistor Test | measures hFE |
| Display | 3.75 digit LCD display, 3999 count |
| Protection | 500mA fuse on mA input, 10A fuse on 10A input |

**Features**

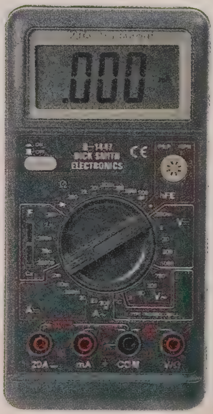
- Autoranging
- Manual Range Override
- Data Hold
- Continuity Tester
- Battery Tester
- Low Battery Indicator
- Auto Power Off
- Diode Tester
- Transistor Tester
- K-type Thermocouple Included

**Autoranging Digital Multimeter**
Q 1456

$82

## 30 RANGE DIGITAL MULTIMETER

A superb tool for repair work, this overload protected multimeter offers full auto-ranging convenience across a broad range of measurement ranges. It also has an auto power-off function as well as overrange and low battery indicators. Includes K-type thermocouple probe.



**Specifications**

| | |
|---|---|
| DC Voltage | 200mV, 2000mV, 20V, 200V, 1000V |
| AC Voltage | 2V, 20V, 200V, 700V |
| DC Current | 2mA, 20mA, 200mA, 20A |
| AC Current | 200mA, 20A |
| Resistance | 200 ohm, 2k ohm, 20k ohm, 200k ohm, 2M ohm, 20M ohm, 200M ohm |
| Capacitance | 2000pF, 20nF, 200nF, 2μF, 20μF |
| Temperature | -40 - 400ºC, 400 - 1000ºC* |
| Continuity Beeper | Included |
| Diode Test | Included |
| Transistor Test | measures hFE |
| Display | 3.5 digit LCD display, 1999 count |
| Protection | 200mA fuse on current input, 20A input unfused |

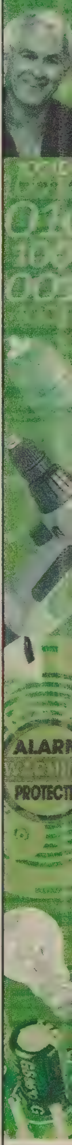
*unit measures up to 1000ºC, supplied thermocouple has maximum rating of 260ºC

**Features**

- Up to 200m ohm Resistance Measurement
- Continuity Tester
- Full Range Auto-zeroing
- Low Battery Indicator
- Auto Power Off
- Diode Tester
- Transistor Tester
- K-type Thermocouple Included

**Multimeter 3.5 Digit 30 Range**
Q 1447

$94



## DSE 24 RANGE MULTIMETER

A robust, accurate multimeter featuring a high degree of overload and user protection. The meter is specifically designed to withstand conditions normally encountered in electronic equipment, electrical appliances and overcurrent-protected, single phase, final subcircuits in residential and commercial installations.

| **Specifications** | |
|---|---|
| DC Voltage | 2V, 20V, 200V, 600V |
| AC Voltage | 2V, 20V, 200V, 600V |
| DC Current | 200μA, 2mA, 20mA, 200mA, 10A |
| AC Current | 200μA, 2mA, 20mA, 200mA, 10A |
| Resistance | 200 ohm, 2k ohm, 20k ohm, 200k ohm, 2M ohm, 20M ohm |
| Continuity Beeper | Included |
| Diode Test | Included |
| Display | 3.5 digit LCD, 1999 count |
| Protection | 500mA fuse on mA input, 10A fuse on 10A input |

**Features**
- Cat II 600V
- Max Hold
- Data Hold
- Continuity Tester
- Auto Polarity
- Low Battery Indicator
- Auto Power Off
- Diode Tester
- Protective Rubber Holster

DICK SMITH ELECTRONICS Q-1563
MAX HOLD
DATA HOLD
V~
V⎓
OFF
A~
A⎓
Ω
μA mA
COM
VΩ
10A

**DSE 24 Range Multimeter**
Q 1563

**$134**

## TRUE RMS MULTIMETER AND HOLSTER

A true-RMS multimeter at an amazing price. True-RMS meters are essential to give you a more accurate reading when dealing with complex AC waveforms.

| **Specifications** | |
|---|---|
| DC Voltage | 320mV, 3.2V, 32V, 320V, 600V |
| AC Voltage | 3.2V, 32V, 320V, 600V |
| DC Current | 320μA, 3200μA, 32mA, 320mA, 10A |
| AC Current | 320μA, 3200μA, 32mA, 320mA, 10A |
| Resistance | 320 ohm, 3.2k ohm, 32k ohm, 320k ohm, 3.2M ohm, 30M ohm |
| Continuity Beeper | Included |
| Diode Test | Included |
| Display | 3.5 digit LCD, 3200 count |
| Protection | 500mA fuse on mA input, 10A fuse on 10A input |

**Features**
- True RMS
- Analogue Bargraph
- Data Hold
- Continuity Tester
- Auto Power Off
- Safety Input Warning Buzzer
- Diode Tester
- Protective Rubber Holster

**True RMS Multimeter**
Q 1455

**$139**

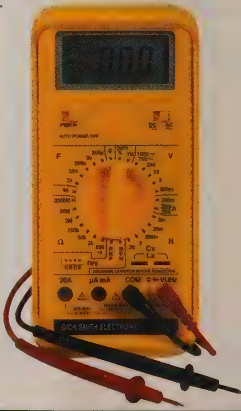
new for 2002

## 3.5 DIGIT LCR MULTIMETER

A highly reliable multimeter that accurately measures inductance, resistance, capacitance, voltage, frequency, and duty cycle. Also tests logic, continuity, diodes, and transistors. Additionally, it lets you know when your battery is running low, as well as providing overrange indication. Further features include a safety input warning buzzer and auto power off.

| **Specifications** | |
|---|---|
| DC Voltage | 200mV, 2V, 20V, 200V, 1000V |
| AC Voltage | 200mV, 2V, 20V, 200V, 750V |
| DC Current | 20mA, 200mA, 20A |
| AC Current | 20mA, 200mA, 20A |
| Resistance | 200 ohm, 2k ohm, 20k ohm, 200k ohm, 2M ohm, 20M ohm, 2000M ohm |
| Capacitance | 2nF, 20nF, 200nF, 2μF, 200μF |
| Inductance | 2mH, 20mH, 200mH, 2H, 20H |
| Frequency | Autoranging up to 20MHz |
| Duty Cycle | 1% - 90% |
| Continuity Beeper | Included |
| Diode Test | Included |
| Transistor Test | measures hFE |
| Logic Test | Included |
| Display | 3.5 digit LCD, 1999 count |
| Protection | 500mA fuse on mA input, 20A fuse on 20A input |

**Features**
- 17mm Digit Size
- Input Safety Warning Beeper
- 20A Current Range
- Overrange Indication
- Auto Polarity
- Auto Power Off
- Inductance Measurement
- Continuity Tester
- Low Battery Indicator
- Transistor Tester
- Diode Tester
- Protective Rubber Holster supplied



**3.5 Digit LCR Multimeter**
Q 1559

**$199**

## BRYMEN BM202 MULTIMETER

An excellent high quality multimeter with a wealth of features. Rated at Cat III 600V and Cat II 1000V DC/750V AC, this meter is suitable for use in measuring domestic mains voltages. It also features a wireless electric field detector that can be used to trace mains wiring simply by passing the meter over the path of the wiring. With the optional interface and software, this meter can also be used in conjunction with your PC.

**Specifications**

| | |
|---|---|
| DC Voltage | 250mV, 2.5V, 25V, 250V, 1000V |
| AC Voltage | 250mV, 2.5V, 25V, 250V, 750V |
| DC Current | 250μA, 2500μA, 25mA, 250mA, 2.5A, 10A |
| AC Current | 250μA, 2500μA, 25mA, 250mA, 2.5A, 10A |
| Resistance | 250 ohm, 2.5k ohm, 25k ohm, 250k ohm, 2.5M ohm, 25M ohm |
| Capacitance | 2.5nF, 25nF, 250nF, 2.5μF, 25μF |
| Temperature | -20ºC to +300ºC |
| Frequency | up to 200kHz |
| Continuity Beeper | Included |
| Diode Test | Included |
| Display | 3 2/3 digit LCD display, 2500 count |
| Protection | 1A fuse on mA input, 13A fuse on 10A input |

**Features**

- Cat III 600V AC/DC
- Cat II 1000V DC/750V AC
- Wireless Electric Field Detection
- Optional RS232 Interface
- Relative Zero Mode
- Autoranging
- Manual Range Overrride
- Data Hold
- Continuity Tester
- Low Battery Indicator
- Auto Power Off
- Diode Tester
- Protective Rubber Holster Supplied
- K-type Thermocouple Included

BM202
0383
Includes K-Type Temperature Probe

**Brymen RS232 Multimeter**
Q 1567
$199

**RS232 Cable and software**
Q 1568
$23.60

## BRYMEN 3.75/4.75 DIGIT DIGITAL MULTIMETER

A high quality meter with a Cat III 600V rating, designed with safety in mind. A wealth of measurement options, coupled with a user friendly display and data hold/record features, make this a perfect tool for the serious tradesperson or technician.

**Specifications**

| | |
|---|---|
| DC Voltage | 400mV, 4V, 40V, 400V, 1000V |
| AC Voltage | 400mV, 4V, 40V, 400V, 750V |
| DC Current | 4000μA, 400mA, 10A |
| AC Current | 4000μA, 400mA, 10A |
| Resistance | 400 ohm, 4k ohm, 40k ohm, 400k ohm, 4M ohm, 40M ohm |
| Capacitance | 4nF, 40nF, 400nF, 4μF, 40μF, 400μF, 4mF, 40mF |
| Conductance | 400nS |
| Frequency | up to 250kHz |
| Continuity Beeper | Included |
| Diode Test | Included |
| Display | 3.75/4.75 digit LCD, 4000/40000 count |
| Protection | 630mA fuse on mA input, 15A fuse on A input |

**Features**

- Cat III 600V
- Cat II 1000V DC/750V AC
- Data Store and Recall
- Relative Zero
- Analogue Bargraph
- Conductance Range
- Dual Display Mode
- Autoranging
- Manual Range Override
- Data Hold
- Continuity Tester
- Low Battery Indicator
- Auto Power Off
- Diode Tester
- Protective Rubber Holster Supplied

**Brymen 3.75/4.75 Digit Digital Multimeter**
Q 1565
$299

## BRYMEN BM511 TRMS MULTIMETER

A high performance Digital Multimeter and Mobile Data Logger that gives you a superb range of features, accuracy, reliability and safety from the specialist designers of Brymen. Cat III 600V/Cat II 1000V rated for mains use, it comes in a splashproof, fire retardant case with an easy to read backlit LCD display.

**Specifications**

| | |
|---|---|
| DC Voltage | 50mV, 500mV, 5V, 50V, 500V, 1000V |
| AC Voltage | 50mV, 500mV, 5V, 50V, 500V, 1000V |
| DC Current | 500μA, 5000μA, 50mA, 500mA, 5A, 10A |
| AC Current | 500μA, 5000μA, 50mA, 500mA, 5A, 10A |
| Resistance | 50 ohm, 500 ohm, 5k ohm, 50k ohm, 500k ohm, 5M ohm, 50M ohm |
| Capacitance | 50nF, 500nF, 5μF, 50μF, 500μF, 9999μF |
| Temperature | -20ºC to +1000ºC |
| Frequency | up to 125kHz |
| Continuity Beeper | Included |
| Diode Test | Included |
| Display | 3 5/6 digit backlit LCD, 5000 count |
| Protection | 1A fuse on mA input, 13A fuse on A input |

**Features**

- Cat III 600V AC/DC
- Cat II 1000V AC/DC
- True RMS
- Optional RS232 Interface
- Analogue Bargraph
- Data Logging (5400 point)
- Auto Lead Resistance Calibration
- Backlit Display
- Autoranging
- Manual Range Override
- Data Hold
- Continuity Tester
- Low Battery Indicator
- Auto Power Off
- Diode Tester
- Protective Rubber Holster Supplied
- K-type Thermocouple Included

Includes K-Type Temperature Probe

**Brymen Multimeter RS232 TRMS**
Q 1557
$369

**RS232 Cable and software**
Q 1553
$23.60

## DSE PROFESSIONAL CLAMP METER

Rugged AC clamp meter with current measurement up to 700 Amp. Also measures AC/DC voltage, resistance, frequency and continuity. Peak reading, Data Hold and diode test functions. Comes with carry case.

| Specifications | |
|---|---|
| DC Voltage | 600V |
| AC Voltage | 200V, 600V |
| AC Current | 20A, 200A, 700A |
| Resistance | 2k ohm, 200k ohm |
| Continuity Beeper | Included |
| Diode Test | Included |
| Display | 3.5 digit LCD display, 1999 count |

**Features**

- Auto Zeroing
- Auto Polarity
- Peak Hold
- Max Hold
- Data Hold
- 2.5 Updates Per Second
- Low Battery Indicator

**DSE Professional Clamp Meter**
Q 1475

**$175**

## DSE AC/DC DIGITAL CLAMP METER

Full featured Cat III rated clamp meter with both AC and DC measurement capabilities. Features data hold, min/max hold, peak hold. Zero relative mode, diode test and continuity test. Measures up to 1000 Amp current in both AC and DC, 1000V DC voltage and 750V AC voltage. Also measures resistance to 40M ohm, capacitance to 40µf, and frequency to 400kHz.

| Specifications | |
|---|---|
| DC Voltage | 400mV, 4V, 40V, 400V, 1000V |
| AC Voltage | 400mV, 4V, 40V, 400V, 750V |
| DC Current | 400A, 1000A |
| AC Current | 400A, 1000A |
| Resistance | 400 ohm, 4k ohm, 40k ohm, 400k ohm, 4000k ohm, 40M ohm |
| Capacitance | 4nF, 40nF, 400nF, 4µF, 40µF |
| Continuity Beeper | Included |
| Diode Test | Included |
| Display | 3.75 digit LCD, 4000 count |

**Features**

- Cat III 1000V
- True RMS
- Min/Max Recording
- Peak Hold
- Data Hold
- Autoranging
- Manual Override
- Relative Zero Mode
- Analogue Bargraph
- Auto Polarity
- Auto Power Off
- Low Battery Indicator

**DSE AC/DC Digital Clamp Meter**
Q 1476

**$339**

## ELECTRICAL TESTERS

### Electrical Tester LED

This handy compact electrical tester is ideal for checking AC/DC voltages up to 1000V. Rated CAT II 300V, this item is suitable for measuring the 240V mains supply. This unit has a series of indicator LEDs in 7 AC/DC ranges, audible continuity and auto power on and off.

Ranges:

- AC Volt: 12, 24, 48, 110, 230, 400, 690
- DC Volt: 6, 12, 24, 36, 48, 110, 220

Q 1491

**$29**

### Electrical Tester 200A AC

A high quality, compact Digital Electrical Tester that is ideal for checking current, voltage, resistance and continuity. This unit has an open clamp to easily make measurements in almost any electrical environment. The heavy duty test leads clip to the rear of the unit to make a compact tool that can fit in your pocket or toolcase.

- CAT III 600V rating • Auto Power Off
- Display Hold • Continuity Buzzer
- 200 Amps AC capability
- 600 Volts AC capability
- 600 Volts DC capability
- 2000 Ohms Resistance Range
- 2000 Count LCD (3.5 Digit)

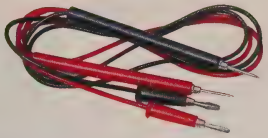
Q 1495

**$98**

### Meter Lead Set With Tip Plugs

900mm lead set fitted with standard 'tip' ends (100mm long probes and 20mm long points) and 1.5mm multimeter terminal points on the other. Suitable for a wide range of multimeters.

Q 1910 **$8.20**



### Meter Leads With Banana Plugs

As used on most modern digital multimeters. 900mm leads fitted with standard probes and 4mm banana plugs, making them suitable for a large range of meters and other test equipment.

Q 1912 **$7.50**

### Meter Test Leads

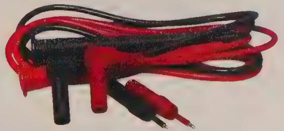
Suitable for most analogue multimeters and a large range of other test equipment, they're fitted with 90° banana plugs and standard probes.

Q 1913 **$12.50**

### Self-Retracting Coiled Meter Lead Set

Saves the hassle of leads cluttering up the workbench. These coiled leads spring back into shape after they've been extended. Red and black with banana plugs.

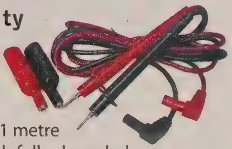
Q 1916 **$13.30**



### Meter Test Lead Set With Removable Tips

1-metre cables with right-angle shielded banana plugs and removeable tips, so you can use them as extension leads or interchange the tips.

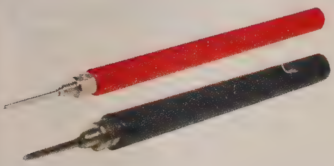
Q 1592 **$18.60**



### High-Quality Meter Test Leads

For the latest digital multimeters. 1.1 metre long cables with fully shrouded right angle banana plugs. The unique threaded test probe allows the included alligator clip adaptors to be firmly attached. Puncture tested to 3kV.

Q 1920 **$19.95**

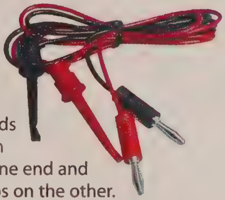


### Probe Test Long Solderless

Use as replacement probes or for making your own leads.

Red P 1754
Black P 1755

**$1.75 ea**



### IC Test Clip Meter Leads

900mm test leads fitted with 4mm banana plugs one end and insulated IC clips on the other. Allows you to hook-on and leaves your hands free for adjustments, etc. Max 50V.

Q 1914 **$8.20**

### Alligator Clip Meter Leads

Shielded alligator clip set with 230mm cables and right-angle shielded banana plugs. They're just the thing when testing components and you need more than two hands.

Q 1594 **$13.30**

| Cat No. | Meter | Test Lead Compatibility | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Q 1912 | Q 1913 | Q 1916 | Q 1592 | Q 1594 | Q 1914 | Q 1920 |
| Q 1418 | 19 Range with Data Hold | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Q 1417 | 19 Range with Buzzer | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Q 1427 | 32 Range | ✓ | ✓ | ✓ | x | ✓ | ✓ | ✓ |
| Q 1569 | Pocket Multimeter | x | x | x | x | x | x | x |
| Q 1456 | 43 Range Multifunction | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Q 1447 | 30 Range Autoranging | ✓ | ✓ | ✓ | x | ✓ | ✓ | ✓ |
| Q 1563 | 24 Range Mains Rated | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Q 1567 | Brymen BM202 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Q 1557 | Brymen BM511 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Q 1559 | LCR Meter | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Q 1565 | Brymen BM727 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Q 1475 | AC Clamp Meter | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Q 1476 | AC/DC True RMS Meter | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

# Meter Accessories & Voltage Testers

## METER ACCESSORIES

### Multimeter Rubber Holster

With a temperature rating up to 75°C, it is suitable for use with the Q 1419 digital multimeter. The holster is not fire protected.
Q 1995 **$12.80**

### Universal Multimeter Carry Case

Zippered case to suit many different types of multimeters and their test leads. Medium size, black in colour.
Q 1990 **$14.95**

### Universal Multimeter Carry Case

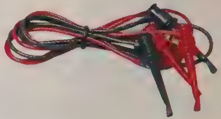
Zippered case to suit many different types of multimeters and their test leads. Large Size, grey in colour.
Q 1992 **$19.95**

### Light Duty Jumper Lead Kit

10 piece set of colour coded jumper leads. Each lead has small insulated alligator clips at both ends.
Q 1900 **$9.95**

### Medium Duty Jumper Lead Kit

4 piece set of colour coded jumper leads with medium sized insulated alligator clips at both ends.
Q 1902 **$9.95**



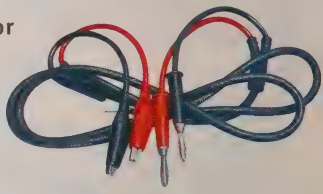
### IC Test Clip Leads

Two colour-coded leads fitted with right-angle claw hooks on each end.
Q 1904 **$10.30**

### BNC-To-Alligator Clip Leads

Quality universal test leads that are ideal for using with oscilloscopes, generators, frequency counters and any device which has a BNC socket. With RG-58A/U coaxial cable and colour-coded (red/black) alligator clips.
Q 1905 **$14.30**

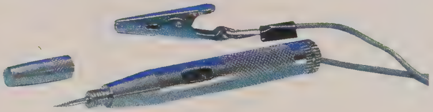
### Banana-To-Alligator Clip Leads



Ideal for most power supplies, generators and instruments that have banana plug sockets. With quality RG-58/U coaxial cable.
Q 1907 **$14.30**

## VOLTAGE TESTERS

### Auto Test Probe - 12/24V



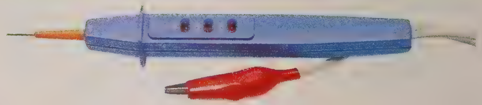
Complete with a screw-on probe-protecting cap and alligator-clip lead, this durable test probe is suitable for automotive use and measures electrical systems of 12V and 24V. An indicator globe lights when voltage is present.
Q 1539 **$10.60**

### Voltage Tester With Screwdriver

Great for checking switches, batteries, bulbs, LEDs and more. Tests AC voltage - (by contact: 70-250V max, non-contact 70-10kV AC) and has both continuity and battery testers. Also includes a screwdriver and handy pocket clip.
Q 1545 **$10.50**

### Continuity Tester

A simple continuity tester ideal for checking circuits, leads & fuses for those broken tracks or wires. Light globe is lit when a circuit is complete. Requires 1 x AAA battery (not supplied).
Q 1543 **$14.95**



### 6V-12V-24V Voltage Tester

A perfect tool for auto electricians, this pencil-style probe checks both AC and DC voltages within the range of 6,12, or 24 volts. Use it to check for live voltages and make sure they're within the voltage range.
Q 1532 **$14.95**

### AC Voltage Finder

Now there's no need to put yourself at risk! This device comes with an insulated tip which detects the electromagnetic field surrounding cables, sensing any AC voltage above 120 volts and warns you with a flashing LED and an audible "buzz".
Q 1531 **$22.30**

### Multifunction Tester

You'll find this tester useful for performing a number of simple test functions such as detecting AC and DC voltage. You can alter its sensitivity according to testing conditions and it has a flashing LED and audible buzzer to warn you if it senses AC voltage above 100 volts.
Q 1541 **$24.70**

## THERMOMETERS

### Digital Stick Thermometer

Compact, hand-held digital thermometer with 3.5-digit LCD. Holds current and maximum readings. Includes K-type thermocouple probe.

- Specifications:
- Unit Range: -50C to 1,300C
- Thermocouple Range: -40C to 260C
- Resolution: 0.1C or 1C
- Output: 1mV/1C
- Accuracy (not inc. thermocouple): -50C to 1,000C: +/-(0.3% rdg +1C). 1,000C to 1,300C: +/-(0.5% rdg +1C)(for operating temperatures of 18C to 28C).
- Probe Accuracy: +/-2.2C or +/-0.75% of reading.

Q 1436

$139

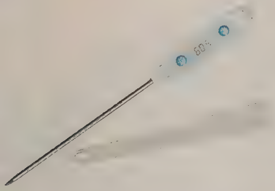
### Deluxe Dual Input Thermometer

Compact, hand-held dual input digital thermometer with 4.5 digit LCD. Offers both Celsius and Fahrenheit readings. Beeper sounds when preset temperature limits exceeded. Records minimum/maximum temperatures and time. Relative mode displays difference between reading and preset value. K-Type thermocouples supplied. Features auto power off, data hold, dual temperature and temperature differential displays.

Specifications: Unit Range: -200deg C to 1,370deg C. Thermocouple Range: -40deg C to 260deg C. Resolution: 0.1 degrees C. Accuracy: -200 to -50deg C +/- (0.05% rdg + 0.3deg). -50 to 1370deg C +/- (0.05% rdg + 0.7deg)

Q 1437

$190

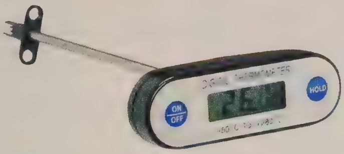


### Digital Pocket Thermometer

This digital pocket thermometer is splashproof and has a measurement range of -50 degrees Celsius to 150 degrees Celsius. Features an on/off switch, minimum/maximum memory function with Celsius or Fahrenheit, and a stainless-steel probe.

Q 1452

$34.95

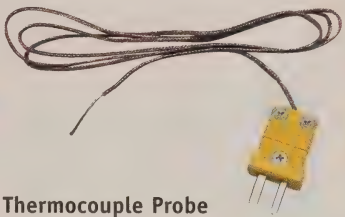


### Digital Stem Thermometer

Features splashproof casing, on/off switch and stainless-steel probe. Has maximum/minimum function.
Measurement range from -50C to 280C.

Q 1453

$49.95



### Thermocouple Probe

Measures a range from -40deg C to 250deg C (-40deg F to 482deg F). An ultra fast response naked bead thermocouple wire, suitable for many general purpose applications.

Q 1439

$29.95

### ProMeasure Ultrasonic Measuring Device

This sophisticated tool uses ultrasonic technology for ultra-fast distance, area and volume measurements. It can measure up to 15 metres or more by using the 'SUM' feature. Suitable for use in building, real estate, engineering, surveying and DIY at home. Measures distances up to 15 metres. Adds up lengths to measure longer distances ('SUM' feature). Conversion of readings between metric and imperial. Memorises length, height, width, area and volume. Calculates area and volume automatically at the touch of a button. Automatic lock for stable readings.

- Measurement Range: 60cm to 15 metres (sum button required for long distances).

Readings: Metric/cm or imperial/inches.
Ultrasonic sensor: *Electrostatic transducer by Polaroid.

Q 1413

$89.95

### Logic Probe

A circuit-powered (4V-18V DC) logic probe that's ideal for troubleshooting and analysis of logic circuits. It's switch-selectable for TTL or CMOS circuits with adjustable threshold for each and has a maximum input signal frequency of 20MHz.

Q 1274

$48.50

### Resistance Substitution Wheel

Convenient and easy to use. Select values from 5 ohms to 1M ohm in 36 steps using the most common divisions. Comes complete with leads and insulated crocodile clips.

Q 1410

$33

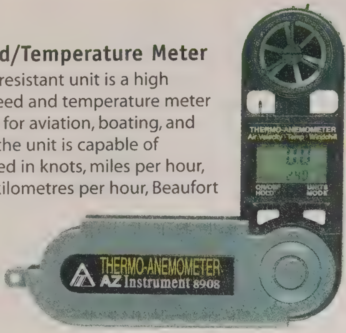
### Click Counter

A great low cost counter with 4 digits. Ideal for use by surveyors, schools and doormen at clubs. Unit counts up to 9999 & has a reset facility.

Q 1330

$17.50

# *Specialty Meters*

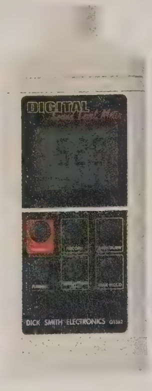


## Pocket Air Speed/Temperature Meter

This compact water resistant unit is a high quality digital air speed and temperature meter with data hold. Ideal for aviation, boating, and sports applications, the unit is capable of displaying wind speed in knots, miles per hour, metres per second, kilometres per hour, Beaufort scale, feet per minute. Temperature is measured in Celsius and Fahrenheit.

Q 1301

**$230**



## Digital Sound Level Meter

This high quality, digital sound level meter provides both automatic and manual ranging and has an analogue digital bargraph. Suitable for accurate measuring of noise levels in factories, schools, offices, discos and auditoriums.

Features: • Range: 40dB to 130dB • Auto Ranging • Manual Ranging • A and C Weighting • Maximum Hold • Record maximum/minimum • Fast and Slow response • Auto power off • Low battery indicator • Measurement Frequency Range: 300Hz to 6000Hz

Q 1362

**$249**

## pH METERS

### Digital Water pH Meter and Case

Measures water pH in many areas such as swimming pools, spas, aquariums, aquaculture, hydroponics, photographic process, cooling towers, water and wastewater treatment, boiler steam generators, car washes, sanitation plants, ecology studies and laboratory applications.

Specifications: • Range: 0.00 - 14.00pH • Resolution: 0.01pH • Accuracy: +- 0.02pH • Size: 158 x 40 x 34mm • Weight: 90g.

Q 1416

**$129**

WATERPROOF

### Waterproof Digital pH Meter

Don't worry if you drop this tester in water - it floats! Double 'O'ring silicone seals keep water out and your tester safe from damage. Use it to test your swimming pool.

- Functions: Auto-power off, automatic calibration, self-diagnostics and hold.
- Robust construction, waterproof & replaceable pH sensor
- Microprocessor based, automatic push-button calibration
- Accurate and stable
- Specifications:
  Range: -1.0 to 15.0pH, exended range.
  Resolution: 0.1 pH
  Calibration: Offset at any one of pH 4.0, 7.0 or 10.0

Q 1415

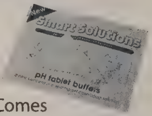
**$229**

### Soil/Plant pH Meter

This Soil/Plant pH meter is specially designed to check the condition of the soil in gardens and pot plants. This will simply tell you if the soil needs pH adjustment.

Q 1392

**$24.95**



### pH-7 Calibration Buffer Tablets

For use with your pH meter. Comes in a pack of 5.

Q 1408

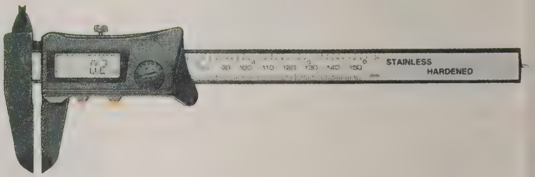
**$9.95**

## Digital Light Meter

Ideal for photography, dark room and video use. Measures up to 50,000 lux over 3 ranges. Features auto-zero function, low battery indicator and carry case. Requires 1 x 9 volt battery for 150-200 hours continuous use.

Q 1400

**$175**



## Digital Calipers

These budget priced callipers feature a 4 Digit LCD display, internal and external measuring jaw, depth measuring blade, metric/imperial conversion, and zero setting.

*Measurement Range: 0-150mm
*Resolution: 0.1mm

Q 1381

**$59**

### 0-30V 2.5 Amp Lab Power Supply with Digital Display

Reliable power supply with digital display for increased accuracy of output voltage and current. Voltage is continuously adjustable between 0-30V DC and current limit is adjustable between 0-2.5 Amp. Provides overload protection and has both high current and low current front panel terminals.

Q 1770

**$249**

### 0-30V 5 Amp Lab Power Supply with Analogue Display

This solidly built laboratory grade linear power supply provides 0-30VDC adjustable output, with current up to 5 Amp continuous at all selectable output voltages. An adjustable current limit control (0-5A) is also provided. Also included are separate voltage and current metering, overload protection and a thermostatically controlled cooling fan. This unit has both high current and low current front panel terminals.

Q 1760

**$349**

### 3-15V 13 Amp DC Power Supply

This is ideal for those needing a low-noise regulated DC power source. DC output is from 3-15V and current is up to 12 amps continuous at 15V (lower current at lower voltages). With front panel metering, high current banana-style and low-current output connections for extra flexibility, internal heatsink and thermally-switched fan provides cooling without protrusions in the metal case (measuring 320 x 150 x 145mm). Extensive overload protection through dissipation limiting circuitry for the pass transistors, AC mains circuit breaker, and a transformer thermal fuse.

D 3812

**$268**

### 3-15V 25 Amp DC Power Supply

This is ideal for those needing a low-noise regulated DC power source. DC output is from 3-15V and current is up to 25 amps at 15V (lower current at lower voltages). With front panel metering, high current banana-style and low-current output connections for extra flexibility. Internal heatsink and thermally-switched fan provides cooling without protrusions in the metal case (which is just 320 x 150 x 145mm). Specially modified for reliable long-term operation, it uses a rugged 50 amp bridge rectifier and trifilar transformer. Also provided is extensive overload protection through dissipation limiting circuitry for the pass transistors, a 30 amp instantaneous current limit, AC mains circuit breaker, a transformer thermal fuse and fused auxiliary secondary winding.

D 3800

**$358**

DICK SMITH ELECTRONICS
Lan Cable Tester
Lan Cable Tester
REMOTE TERMINATOR

## DSE LAN Cable Tester

A low-cost, easy-to-use LAN Cable Tester that can verify cable continuity, short circuits and incorrect wiring of RJ-45 (CAT5), RJ-11 and coaxial LAN cables up to 300 metres. This unit also has Auto or Manual scan for pin-out indicators and a ground wire test. Comes complete with three connector leads, RJ-45 to RJ-45, RJ-45 to BNC socket, RJ-45 to BNC plug and a BNC to BNC adaptor, all in a protective carry case.

Q 1501 **$119**

PINTEK
FG-30

## Bench Style Function Generator

The FG-30 is a multi-purpose, highly reliable and low cost 3 MHz sweep function generator. Whilst being easy to use, it also provides many convenient features which make it an ideal instrument for electronics, education, production and research and development laboratories.

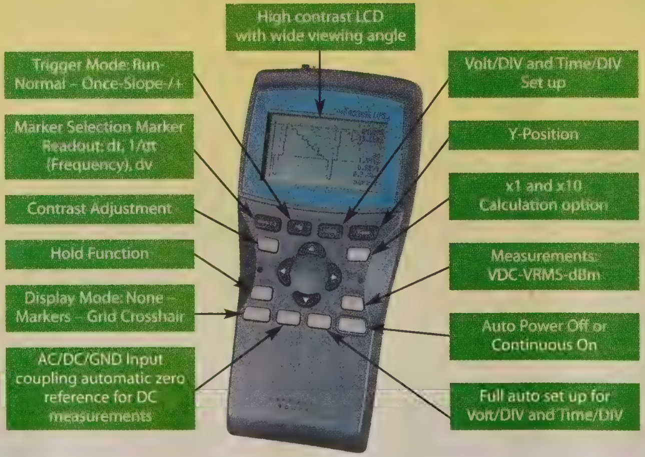
• Six output waveforms, Sine, Square, Triangle, Ramp, Positive Pulse & Negative Pulse • Pulse generator- Adjustable pulse width from 100ns to 0.4s • Sweep generator -Linear or Log Sweep, Sweep speed 10ms-5s.Sweep width 1:1 - 1:100 • Sine Wave distortion <2%,1Hz-100kHz • Square Wave Rise Time <60ns

Specifications: Frequency: 0.5Hz-3MHz(2.5MHz for Ramp and Pulse) in six steps. Output waveform: Sine, Square, Triangle, Positive Pulse and Negative Pulse. Main output Impedance: 50 Ohms. Max output: No load 20V p-p; 50 Ohms load 10V p-p. Min output: No Load 0.1V p-p; 50 Ohms load 0.05V p-p

Other outputs: Synchronous, sweep sychronous

Q 1826 **$339**

velleman


High contrast LCD with wide viewing angle
Trigger Mode: Run-Normal - Once-Slope-/+
Marker Selection Marker Readout: dt, 1/dt (Frequency), dv
Contrast Adjustment
Hold Function
Display Mode: None - Markers - Grid Crosshair
AC/DC/GND Input coupling automatic zero reference for DC measurements
Volt/DIV and Time/DIV Set up
Y-Position
x1 and x10 Calculation option
Measurements: VDC-VRMS-dBm
Auto Power Off or Continuous On
Full auto set up for Volt/DIV and Time/DIV

## HPS5 1MHz Oscilloscope

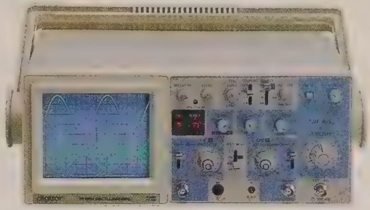
The JPS5 Scope is a complete portable oscilloscope at the size and cost of a good multimeter. Its high sensitivity - down to 5mV/div and extended scope functions make this unit ideal for hobby, audio, automotive, service and development purposes. With its ultra fast auto-setup, provided by a state-of-the-art 20MHz RISC processor, measurement couldn't be easier. Comes complete with protective carry case, test leads and instruction manual.

Q 1801 **$490**

**Probe Insulated 60S** Q 1800 **$59.95**

## Dual Trace, Dual Trigger 20MHz CRO

Affordable 20MHz oscilloscope suits a wide range of applications. Dual trace, dual trigger CRO with fully adjustable sweep time (in 20 steps), variable hold-off, fully adjustable sensitivity, switch selectable X-Y operation, selectable trigger modes, AC/TV H/TV V trigger coupling, front-panel variable trace rotation & sweep rate from 10nS/DIV to 2S/DIV.



**Specifications:**

| | |
|---|---|
| Vertical Sensitivity: | 5 mV/div to 5 V/div (x1 mode)<br>1 mV/div to 1 V/div (x5 mode)<br>1-2-5 sequence, 10 step attenuator |
| Sweep Speed: | 0.1 us/Div to 0.2 s/Div in 1-2-5 sequence, 20 steps |
| Sweep Magnification: | 10X |
| Rise Time: | Approximately 17.5ns |
| Operating Modes: | CH1, CH2, Alt, Chop    Trigger Coupling: Auto, Norm, TV-H, TV-V |
| Trigger Sensitivity: | Internal: 1.5 division (1.0 division with TV coupling)    External: 500mV |
| Trigger Source: | CH1, CH2, Alt, Ext, Line |

Q 1802

**$848**

## 60MHz Dual Timebase CRO With Component Tester

Essential for anyone working on CB radios, high frequency transceivers & high speed computers. With dual-time base, make more accurate timing measurements and compare portions of a signal at two different sweep speeds. Also get jitter-free triggering of delay sweeps & front-panel adjustable trace rotation. Beam Finder finds the trace on the screen at the touch of a button. Test capacitors, inductors, diodes, transistors, Zeners, etc easily & quickly. Adjustable screen grid illumination means you can use it in virtually any lighting situation. Comes with two probes.

**Specifications:**

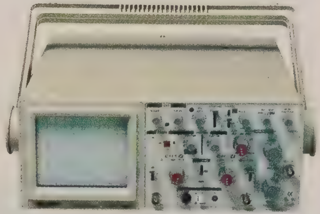
| | |
|---|---|
| Sensitivity: | 1mV/div - 1V/div (15MHz, - 3dB), x5 gain selected: 5mV/div - 5V/div |
| Rise Time: | Approx. 5.8nS |
| Hold-Off Time: | 5:1 continuously variable |
| Main Sweep Speed: | 0.1us/div - 0.2s/div in 1-2-5 sequence, 23 steps |
| Delay Sweep Speed: | 0.1us/div - 0.2s/div in 1-2-5 sequence, 23 steps |
| Sweep Magnification: | 10X |
| Operating Modes: | CH1, CH2, Alt, Chop. |
| Trigger Coupling: | Auto, Norm, TV-V, TV-H |
| Trigger Source: | CH1, CH2, Alt, Line, Ext. |

Q 1806

**$1476**

## CRO 100MHz Dual Trace

A full featured wide bandwidth instrument suitable for demanding digital and RF applications. It's high-brightness CRT and versatile trigger and timebase facilities reveal signals invisible on lesser models. This 100MHz oscilloscope has many features including dual trace, 100MHz bandwidth, 3.5ns vertical rise time, variable delay timebase, 1mV/division sensitivity, operating modes – Ch1, Ch2, dual, alt, dual chop, add/subtract, selectable trigger sources – Ch1, Ch2, add, external and mains synch, synch filtering for stable display of TV signals and high brightness mesh CRT with internal graticule.



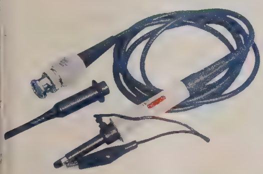
**Specifications:**

| | |
|---|---|
| Sensitivity: | 1mV-1V/div in 1-2-5 sequence, 10 steps (x5)<br>5mV-5V/div in 1-2-5 sequence, 10 steps (x1) |
| Rise Time: | Approx. 3.5nS |
| Main Sweep Speed: | 0.2us - 0.5s/div in 1-2-5 sequence, 23 steps |
| Delay Sweep Speed: | 0.2us - 0.5s/div in 1-2-5 sequence, 23 steps |
| Sweep Magnification: | 10X (sweep expansion to 0.1us/div) |
| Operating Modes: | CH1, CH2, Dual, Alt, Chop, Add. |
| Trigger Coupling: | AC, TV-H, TV-V, Slope, Norm, Ext. |
| Trigger Source: | CH1, CH2, Alt, Ext, Line. |

Q 1810

**$2150**

## TEST PROBES



### Universal CRO 60MHz Probe

Universal 1:1/1:10 switchable probe with wandering earth lead and insulated shroud. Comes in handy carry pouch.

Q 1247

**$39.95**

### Universal CRO 100Mhz Probe

100MHz bandwith probe, switchable between 1:1 and 1:10 ratios. Features wandering earth lead and insulated shroud, complete with carry pouch.

Q 1249

**$54.95**

# Panel Meters

MU-45 type meters already adapted to suit almost any requirement with shunts and multipliers. With full scale accuracy better than or equal to 2.5%. All have mechanical zero adjustment. Nuts and washers supplied.

**MU-45 Type Dimensions**
Scale area: 55 x 30mm
Overall: 58 x 52mm
Mounting hole: 45mm
Bolt holes: 38mm centres x 3mm bore

### 0-50uA Standard Panel Meter

Internal Resistance: 3,500 ohms
Q 2021

MICROAMPERES

$29.60

### 0-1mA Standard Panel Meter

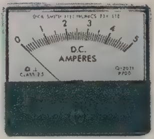
Internal Resistance: 200 ohms
Q 2011

MILLIAMPERES

$29.60

### 0-5A Standard Panel Meter

Internal Resistance: 0.015 ohms
Q 2031



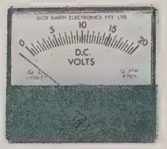
$29.60

### 0-10A Standard Panel Meter

Internal Resistance: 0.008 ohms
Q 2033
$29.60

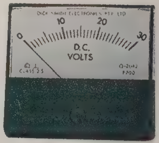
### 0-20A Standard Panel Meter

Internal Resistance: 0.004 ohms
Q 2036
$29.60



### 0-20V Standard Panel Meter

Internal Resistance: 1K ohm/volt
Q 2041
$29.60



### 0-30V Standard Panel Meter

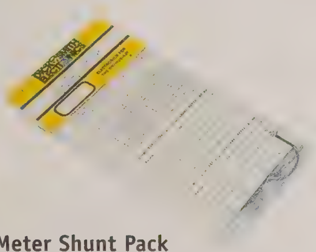
Internal Resistance: 1K ohm/volt
Q 2042
$29.60

### Universal Meter MU-45 Type

DICK SMITH ELECTRONICS PTY. LTD.

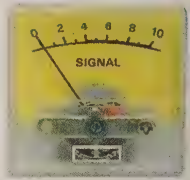
Combined with our Shunt Pack, this versatile universal 100uA panel meter can be easily adapted for almost any scale variation of volts, amps, ohms, etc. Operates over the range 100uA - 316mA & 1V - 100V.

• Internal Resistance: 3,500 ohms • Full Scale Accuracy: 2.5% or better (Class 2.5) • Case Dimensions: 58mm wide x 52mm high
Q 2047
$29.60



### Meter Shunt Pack

Designed for the above panel meter, but handy for most meter conversions. Comes with shunt resistors from 1.1 to 1,000,000 ohms, resistance wire and instructions.
Q 2046
$2.95



### Signal Level Meter

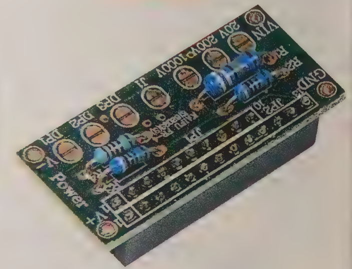
Particularly suitable for AM/FM tuner & receiver projects. Scale size: 34 x 17mm (same size cutting required). Impedance 1K. Straw-coloured meter face, looks great back-lit. Signal Strength: 250uA FSD.
Q 2100
Limited Stock
$16.40

### DSE 3.5 Digit LCD Panel Meter

With a 13mm display height, 200mV full scale input sensitivity and single 9V DC operation. Used for voltmeters, thermometers, current meter, capacitance meter, pH meter and more.
Q 2220
$29.60

### DSE 3.5 Digit LED Display

14.2mm high, red super bright LED display with 200mV full scale range, 1M Ohm impedance and 5V DC power.
Q 2230
$32.60



### Voltage Divider for Q2230

Use this voltage divider board to extend the voltage range of the Q-2230 Digital LED Panel Meter.
Q 2231
$8.50

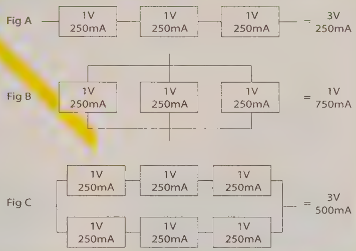
## SOLAR ENERGY

Each day more energy falls to the Earth from the sun's rays than the total amount of energy the planet's 5.9 billion inhabitants would consume in 27 years. Solar electric systems are simple to operate and have no moving parts; however, photovoltaic (photo – light and voltaic – voltage producing) or PV cells employ sophisticated semiconductor devices, many of which are similar to those developed in the integrated circuit industry over the last 35 years. The solar panels are just one element of the complete solar system. For stand-alone systems you will likely need a battery set for charging during the day, a charge controller or regulator to perform that task, and an inverter if you need AC power.

## SOLAR MODULES

### Connecting Solar Modules

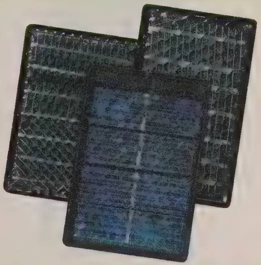
Depending on the way you connect solar modules together you can increase the overall output voltage or current. By joining modules in series (Fig A), you increase the output voltage but the current stays the same. By joining modules in parallel (Fig B), you increase the output current but the voltage stays the same. By using a combination of these two connection methods (Fig C) it is possible to increase both the output voltage and current.



### Solar Hobby Cells

Used individually or interconnected for increased voltage (series) or current (parallel).

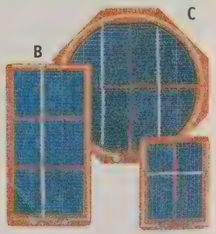
| | | |
|---|---|---|
| **0.45V 400mA** | O 2000 | $4.80 |
| **0.45V 1A** | O 2001 | $11.30 |
| **2.0V 200mA** | O 2011 | $11.30 |



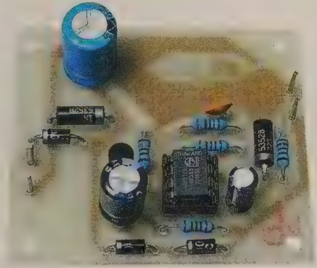
### Solar Modules

New solar modules feature tough coatings and weather protection for those rough and hot applications.

| | | | |
|---|---|---|---|
| A | **1.0V 250mA** | O 2013 | $8.40 |
| B | **1.5V 500mA** | O 2015 | $15.80 |
| C | **2.0V 500mA** | O 2017 | $18.40 |



## SOLAR KITS



### Solar Generator Kit

Cheap, no fuss way to trickle charge a 12V lead acid or gel cell battery using a solar panel. Ideal for any area where mains power is unavailable. Supplied in short form with PCB and components. Assembly required.

K 3129

$13.80

Solar Educational Kit

### Solar Educational Kit

A fun inexpensive way to learn about solar energy. Comes with solar cell module, solar-powered motor, wires and plastic turntables.

K 1060

$15.60

EDUCATIONAL SOLAR ENERGY KIT

### Solar Energy Kit

Learn about the wonders of Solar Energy. This kit has a comprehensive booklet, solar panel, DC motor, fan, motor stand, connection links, spanner and wiring.

K 1066

$28.10

**BP SOLAR**

BP Solar's SX series provides cost-effective photovoltaic power for general use, operating DC loads directly or, in an inverter-equipped system, AC loads.

**BPSX40U/BPSX50U**

With 36 multicrystalline cells in series, they charge batteries efficiently in virtually any climate. Typical commercial applications of these modules, which generate nominal maximum power of 40 watts and 50 watts respectively, include remote telemetry, instrumentation systems, security sensors, and land-based navigation aids. They are also well-suited to providing subsistence power to homes in remote areas without utility (mains) service.

**BPSX60U**

With 60 watts of nominal maximum power, the BPSX60 is well-suited to traditional applications of photovoltaics such as telecommunications, cathodic protection, remote villages and clinics, pumping, and land-based aids to navigation. Its 36 multicrystalline silicon solar cells charge batteries efficiently in virtually any climate.

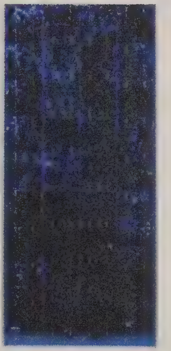
**BPSX80U**

With 80 watts of nominal maximum power, the BPSX80 is well-suited to traditional applications of photovoltaics such as telecommunications, remote villages and clinics, pumping, and land-based aids to navigation. Its 36 series-connected cells charge batteries efficiently in virtually any climate.

new for 2002

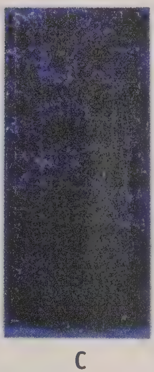
A

new for 2002



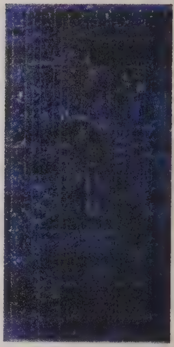
B

new for 2002



C

new for 2002



D

## High Power – BP Solar Polycrystalline Photovoltaic Modules

| | Model | Nominal Peak Power (W) | Peak Power Voltage (V) | Peak Power Current (A) | Short Circuit Current (A) | Open Circuit Voltage (V) | Weight (kg) | Catalogue Number | Price |
|---|---|---|---|---|---|---|---|---|---|
| A | SX 40U | 40 | 16.8 | 2.37 | 2.58 | 21.0 | 5.4 | O 3250* | $620 |
| B | SX 50U | 50 | 16.8 | 2.97 | 3.23 | 21.0 | 6.3 | O 3251* | $735 |
| C | SX 60U | 60 | 16.8 | 3.56 | 3.87 | 21.0 | 7.2 | O 3252* | $890 |
| D | SX 80U | 80 | 16.8 | 4.75 | 5.17 | 21.0 | 9.5 | O 3253* | $1090 |

* Customer order only

## 12V 115Ah Exide Battery

Exide Deep Cycle Batteries are built to be repeatedly discharged and recharged, and are of rugged construction to withstand the pounding and vibration evident in marine use. Capacity: 12V, 115Ah
Size: 324 x 173 x 235 (LxWxH)
O 3254

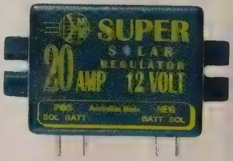
**$275**

EXIDE
STOWAWAY

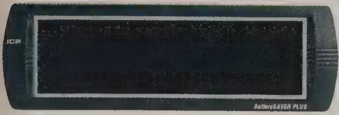
## 12V 20A Regulator

For use with solar panels. Maintains batteries in high state of charge and protects against over charging.
O 3121

**$99**



## ICP PANELS



### ICP Solar Panel BatterySAVER PLUS 1.8W

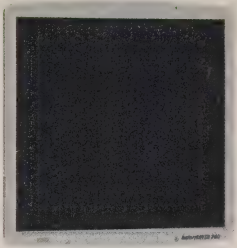
If you've ever been caught with a dead car battery, you know the inconvenience, cost and danger it can cause. Battery SAVER PLUS will constantly replenish your car's battery by sending a maintenance level charge to the battery of your vehicle. Features blinking LED charge indicator. Connects in seconds. Includes 10ft wire, cigarette lighter connector and built-in diode for reverse current protection.

- Peak Power 1.8W
- Operating Current 125mAMP/Hr
- Length 344mm
- Depth 18mm • Weight 600g
- Operating Voltage 15V
- Open Circuit Voltage 24V
- Width 115mm
- Temp Range -40°C to 80°C

O 3300

**$79.95**

### ICP Solar Panel BatterySAVER PLUS 5W



Large vehicles such as pickups, vans, RV's, or boats have larger battery drains simply because they have more electronics(example: bilge pumps, small appliances etc). For this type of use we recommend the BatterSAVER Pro5W model. Includes 10 feet 16-gauge wire, built-in diode for reverse current protection and battery clamps.

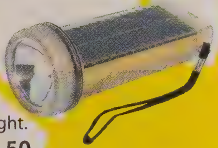
- Peak Power 5W
- Operating Current 350mAMP/Hr
- Length 308mm
- Depth 25mm • Weight 600g
- Operating Temp -40°C to 80°C
- Operating Voltage 15V
- Open Circuit Voltage 24V;
- Width 308mm
- Weight 1.5kg

O 3302

**$178**

## SOLAR TORCHES

### Weather Proof Solar Torch

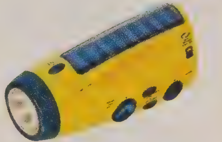


This water resistant torch has a nylon strap, a bicycle mounting kit, flashing LEDs and includes a warning light. It can work with normal type 'AA' size (UM-3) batteries when there is no sunlight.

O 2045

**$25.50**

### Solar Powered Radio Torch Siren



A must for camping trips, this compact torch with radio has AM/FM reception, an emergency siren, flashing torch and can be powered through solar energy, an AC/DC adaptor, AA batteries or a Dynamo generator.

O 2052

**$49.95**

### Solar Radio/Torch/Lantern with Dynamo

This compact torch/lantern with flasher features an AM/FM radio and an emergency siren. Powered through solar energy, built in dynamo generator, AC/DC adaptor (not included) or AA batteries. Ideal for camping trips or use in emergency kits.

O 2053

**$69.00**

TWIN LIGHT 12V DC

### Twin 12V Fluoro Light

Twin tube fluorescent light with cigarette lighter plug. Selectable one or two tube operation. Low power consumption - ideal for solar applications.

O 3198

**$35.60**

## SOLAR CHARGERS

### Solar Nicad Charger 4 x "AA"

Charges 1 x "AA" size battery in 2-3 hours, 2 x "AA" batteries in 4-6 hours, 3 x "AA" batteries in 7-10 hours and 4 x "AA" batteries in 10-14 hours in full sunlight. Batteries not included.

O 2003

**$16.50**

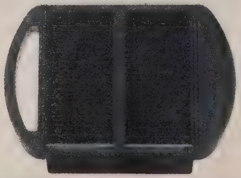
### Solar NiCad Charger with Meter

Includes a meter that lets you know how strong the sunshine is and how long the batteries need to be charged. Suitable for charging AAA/AA/C/D and Prismatic batteries. (Batteries not included.)

O 2009

**$32.80**

### ICP Battery Saver PowerPak



The solar charger of all solar chargers! It's a true portable power center for lightweight power applications when you're on the go! From running a small radio without batteries on the beach to recharging your cellular phone battery in the middle of nowhere. This product is a true life saver for people who need portable power but can't connect to a mains power source when they need it.

O 3322

**$89.95**

## FUNWAY

### Funway Into Electronics Volume 1

Introductory textbook for electronics in schools. Suits people who are beginners in basic electronics. Necessary to own when purchasing the Funway 1 Project Kits.

B 2600

$\$7^{95}$

FUNWAY 1
INTO ELECTRONICS
Volume
LEARN ELECTRONICS THE FUN WAY!
Written by Dick Smith
DICK SMITH ELECTRONICS

### Funway into Electronics Volume 2

The book that takes over where Funway 1 left off. Gives instructions for building 20 exciting electronic projects. Contains hints and tips on using multimeters, soldering, making printed circuit boards and building projects. Also gives information on radio, technical terms, interesting pioneers and great discoveries that have shaped the course of electronics.

B 2605

$\$9^{95}$

FUNWAY 2
INTO ELECTRONICS
Volume
LEARN ELECTRONICS THE FUN WAY!
Written by Dick Smith
DICK SMITH ELECTRONICS

## GENERAL ELECTRONICS

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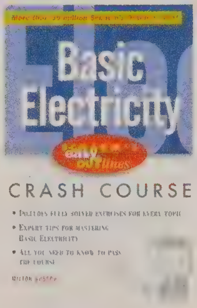
### Schaum's Basic Electricity

Students need no prior knowledge of electricity to gain a broad and deep understanding with this book. Numerous easy-to-follow examples" illustrated with diagrams" demonstrate the operation and application of electric circuits.

B 1650

$\$19^{95}$

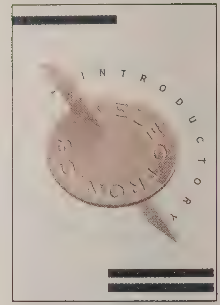

Basic Electricity
CRASH COURSE

### Introductory Electronics

An introductory text designed for students and enthusiasts. It starts with basic theories and, using well defined chapters and exercises, takes you through to the construction of electronic circuits.

B 3635

$\$24^{95}$

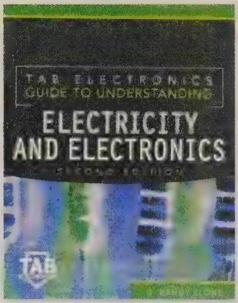

INTRODUCTORY

### Understanding Electricity and Electronics 2nd Edition

Master electricity and electronics in the real world with the practical, easy-to-build projects in this easy-to-follow book. Gives plain English explanations of electronic components, laws of electricity and much much more. 400 pages.

B 1752

$\$55^{95}$

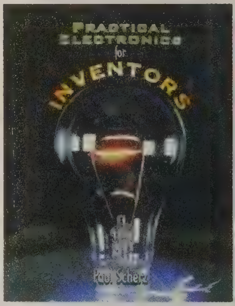

TAB ELECTRONICS
GUIDE TO UNDERSTANDING
ELECTRICITY AND ELECTRONICS
SECOND EDITION
TAB

### Practical Electronics For Inventors

Gives you the information you need, in a format you can work with. Covering all major electronic elements and packed with hand-drawn illustrations, this crystal-clear, learn-as-you-go guide shows you what a particular device does, what it looks like, how it compares with similar devices, and how it is used in applications.

B 1636

$\$79^{95}$

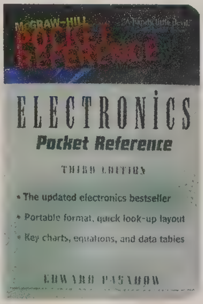

PRACTICAL ELECTRONICS for INVENTORS
Paul Scherz

### Electronics Pocket Reference

All the electronics information you need in a format you can use. Compact and complete, and featuring formulas, tables, and diagrams to help you flip to the answer for you question in 60 seconds or less.

B 1637

$\$46^{95}$


McGRAW-HILL
POCKET REFERENCE
ELECTRONICS
Pocket Reference
THIRD EDITION
The updated electronics bestseller
Portable format, quick look-up layout
Key charts, equations, and data tables
EDWARD PASAHOW

### How To Install Burglar Alarms Book

Our do-it-yourself booklet that makes securing your house a breeze!

Covers details on the different alarm systems available, how an alarm works, buying the right equipment, installation, wiring, CCTV systems and much more!

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$\$4^{95}$

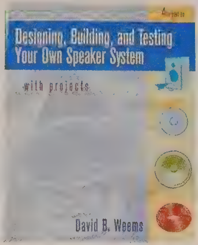
HOW TO INSTALL YOUR OWN BURGLAR ALARM SYSTEM
DICK SMITH ELECTRONICS

## AUDIO BOOKS

### Designing, Building & Testing your own Speaker System 4th Edition

Projects and step-by-step instructions on choosing the right speakers, set up a home system, building speakers and how to evaluate speakers by ear.

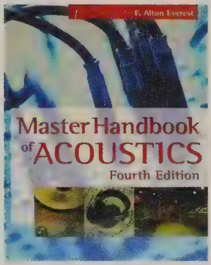
B 1264 **$49<sup>95</sup>**


Designing, Building, and Testing Your Own Speaker System
with projects
David B. Weems

### Master Handbook of Acoustics 4th Edition

Reviews acoustical principles and applies the theory to the design of special room spaces: the home listening room, the control room, and the multi-track recording studio. New chapters on computer aided room design, digital and analogue sound processing. 615 pages.

B 7805 **$69<sup>95</sup>**


F. Alton Everest
Master Handbook of ACOUSTICS
Fourth Edition

### High Power Audio Amplifier Construction Manual

Ideal for audiophiles, electronics hobbyists, and audio engineers, here is the ultimate audio amplifier dream-to-reality book, giving you leading-edge electronics tools for designing every detail of a superior high-power amplifier.

B 1258 **$64<sup>95</sup>**

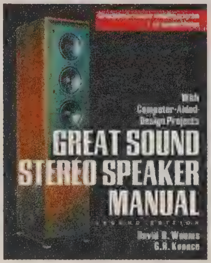
*Limited Stock

HIGH-POWER AUDIO AMPLIFIER CONSTRUCTION MANUAL

### Great Sound Stereo Speaker Manual

This book shows you through simple and clear steps how to make your own speakers from the ground up. Features six completed projects.

B 1265 **$79<sup>95</sup>**


With Computer-Aided Design Projects
GREAT SOUND STEREO SPEAKER MANUAL
David B. Weems
G.R. Koonce

## GENERAL ELECTRONIC BOOKS

new for 2002

### Component Comparison Tables Vol. 1

This Comprehensive book includes devices with alphabetic manufacturers' part codes starting from A through to Z and lists nearly 100,000 codes and 190,000 comparisons and equivalents. 2040 pages in total.

B 1654 **$49<sup>70</sup>**

Transistors
Diodes
Thyristors & IC'S
Comparison
Tables
VRT

### Mechanical Devices for the Electronics Experimenter

Learn how to design, build, adapt, and use many types of mechanical devices, with an emphasis on electromechanical equipment that can be used for motion and positioning in robotics.

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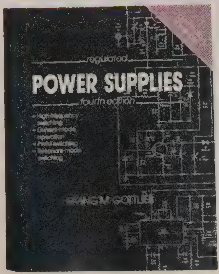
MECHANICAL DEVICES FOR THE ELECTRONICS EXPERIMENTER
HYDRAULICS
PNEUMATICS
CAMS
SOLENOIDS
GEAR TRAINS
VACUUM ACTUATORS
TAB

### Regulated Power Supplies

This book is geared to the practical needs of engineers, technicians, and enthusiasts involved in the design, testing, and implementation of regulated power supplies. Provides full coverage of standard power supply sources now found in a majority of applications.

B 1746 **$59<sup>95</sup>**


regulated
POWER SUPPLIES
fourth edition

new for 2002

### Component Comparison Tables Vol. 2

Volume 2 of this great guide includes numeric manufacturers' part codes starting from 0 through to 1N,2N,2SK etc 30,000 codes and 90,000 comparisons and equivalents. 1304 pages in total.

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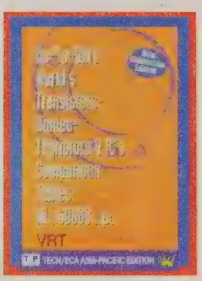

### Making Printed Circuit Boards

Takes the reader step-by-step from schematic diagram to finished project and includes 25 different projects to get you started.

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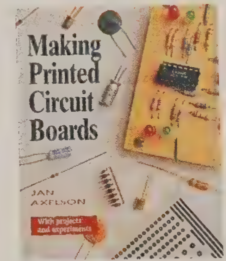
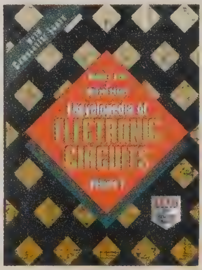

Making Printed Circuit Boards
JAN AXELSON
With projects and experiments

### Encyclopedia of Electronic Circuits Volume 7

Designed for quick reference and on the job use, the Encyclopedia of Electronic Circuits Volume 7 puts over 1000 state of the art electronic and integrated circuit designs at your fingertips.

B 1768 **$99<sup>95</sup>**


Encyclopedia of ELECTRONIC CIRCUITS

## PROJECT BOOKS

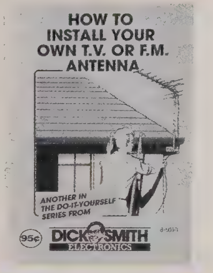
### 5 More FM Bugs Book

Includes instructions for building 5 miniature FM transmitters and how to put these to use.
B 3651 **$3.50**

5 MORE FM BUGS

### How To Install TV/FM Aerials

Fed up with getting ripped off by unscrupulous installers? This practical guide to the installation of TV antennas shows you how to save money by doing it yourself.
B 6010 **$1.95**


HOW TO INSTALL YOUR OWN T.V. OR F.M. ANTENNA
ANOTHER IN THE DO-IT-YOURSELF SERIES FROM
95¢
DICK SMITH ELECTRONICS

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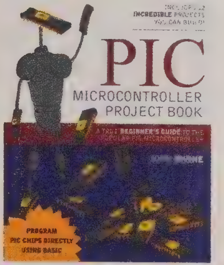
### PICmicro Source book with Projects

Provides electronics hobbyists with a complete set of projects they can build with the PIC microcontroller. All projects use Microchip's free MPLAB compiler and the BASIC programming language, which means that no assembly language programming is required.
B 1656 **$64.95**

TAB
PICmicro sourcebook

### PIC Microcontroller Projects

A true beginner's guide to the popular PIC microcontroller. This book includes 12 incredible projects you can build! Program PIC chips directly using BASIC.
B 4810 **$69.80**


PIC
MICROCONTROLLER PROJECT BOOK
PROGRAM PIC CHIPS DIRECTLY USING BASIC

### Programming and Customizing the BASIC Stamp Computer Book, 2nd Edition

This classic guide to commanding control of the BASIC Stamp computer is a must for the hobbyist and professional designer. CD included.
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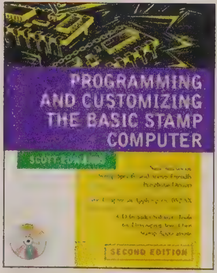
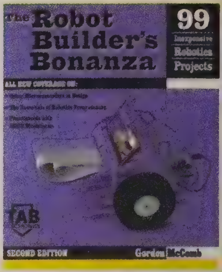

PROGRAMMING AND CUSTOMIZING THE BASIC STAMP COMPUTER
SECOND EDITION

### Robot Builders Bonanza 2nd Edition

The bible of amateur robotics. Learn to create robots that walk, see, feel, listen and think. This book is full of projects and new information.
B 1599 **$52.95**


The Robot Builder's Bonanza
99 Inexpensive Robotics Projects
TAB
SECOND EDITION
Gordon McComb

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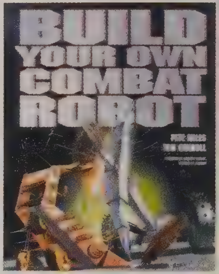
### Build Your Own Combat Robot

Create your own powerful battling robot from start to finish using this easy-to-follow manual. Robotics experts Pete Miles and Tom Carroll explain the science and technology behind robots, and show you what materials you need to build one.
B 1651 **$68.95**


BUILD YOUR OWN COMBAT ROBOT

new for 2002

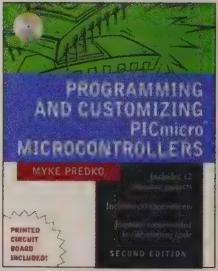
### Build Your Own Remote Controlled Robot

Here are all the step-by-step, heavily illustrated plans you need to build a full-sized, remote-controlled robot named Questor-without any advanced electronic or programming skills. It's the perfect way to jump into the fascinating world of robotics!
B 1657 **$49.95**

BUILD ROBOT

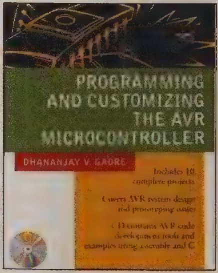
### Programming and Customizing the PIC Microcontrollers 2nd Edition

Comprehensive coverage of the PIC Micros' hardware architecture and software schemes will complement the host of experiments and projects. Comes with CDROM and PIC programmer PCB.
B 7491 **$89.95**


PROGRAMMING AND CUSTOMIZING PICmicro MICROCONTROLLERS
MYKE PREDKO
PRINTED CIRCUIT BOARD INCLUDED!
SECOND EDITION

### Programming and Customizing the AVR Microcontroller Book & CD

This reader-friendly guide shows you how to take charge of the newest, most versatile microcontrollers around, Atmel's AVR RISC chip family. Walks you from first looks all the way through design and ready-to-launch products.
B 7493 **$99.95**


PROGRAMMING AND CUSTOMIZING THE AVR MICROCONTROLLER
DHANANJAY V. GADRE

### Troubleshooting & Repairing Consumer Electronics without a Schematic

Provides experienced, hands-on information and advice on how to troubleshoot and repair a wide range of electronic units including stereos, TVs, CD players, VCRs, and car radios.

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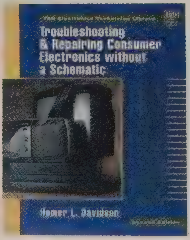
TAB Electronics Technician Library
Troubleshooting & Repairing Consumer Electronics without a Schematic
Homer L. Davidson
Second Edition

### How Electronic Things Work... and What to Do When They Don't

With this fully illustrated, simple to use guide, you will get a grasp on the workings of the electronic world that surrounds you - and even learn to make your own repairs.

B 1623 $\$59^{95}$

How Electronic Things Work
Robert Goodman

### Home VCR Repair Illustrated, Second Edition

Completely revamped guide to fixing your own VCR. Loaded with easy to follow instructions and more than 500 photos and illustrations.

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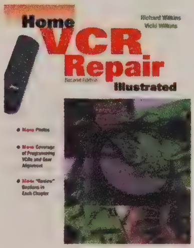
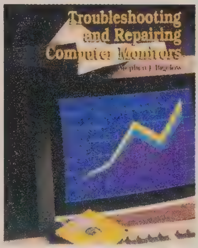

Home VCR Repair Illustrated
Second Edition
Richard Wilkins
Vicki Wilkins

### Trouble shooting & Repairing Monitors Book

This popular book covers most of the problems encountered and how to overcome them.

B 1645 $\$69^{95}$

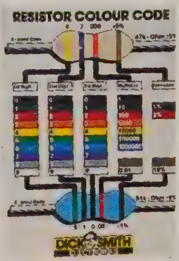

Troubleshooting and Repairing Computer Monitors
Stephen J. Bigelow

## POSTERS & WALLCHARTS

### Resistor Colour-Code Chart

A very useful colour-code chart for interpreting 1st, 2nd and 3rd levels, as well as multiplier and tolerance levels for both four and five-band resistors. 595 x 420mm.

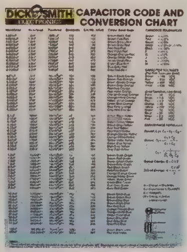
B 1000 $\$5^{95}$


RESISTOR COLOUR CODE
DICK SMITH

### Capacitor Code Chart

A cross-reference between microfarads, nanofarads, picofarads, EIA/American and European code markings and colour-band code used in identifying capacitor values. Large A2 sized poster.

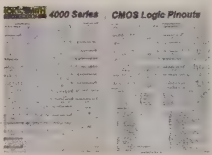
B 1004 $\$5^{95}$


DICK SMITH ELECTRONICS
CAPACITOR CODE AND CONVERSION CHART

### 4000 Series CMOS Reference Chart

A handy pin-out reference chart covering 46 of the most popular and used devices in the 4000 CMOS IC family. Great idea for the classroom, 'HAM' shack, or workshop. Size: A2.

B 1010 $\$5^{95}$


4000 Series
CMOS Logic Pinouts

## SCIENCE CHARTS

| Description | Cat No. |
|---|---|
| Air | B 0010 |
| Water | B 0012 |
| Sound | B 0013 |
| Heat | B 0014 |
| Matter | B 0015 |
| Energy | B 0016 |
| Magnetism | B 0017 |
| Static Electricity | B 0018 |
| Current Electricity | B 0019 |
| Electromagnetism | B 0020 |
| Mass and Weight | B 0021 |
| Force | B 0022 |
| Oxygen | B 0023 |
| Hydrogen | B 0024 |
| Nitrogen | B 0025 |
| Density | B 0026 |
| Optics | B 0027 |
| Weather | B 0028 |
| Work | B 0029 |
| Acids and Bases | B 0030 |
| Measurement of Matter | B 0031 |
| Carbon Dioxide | B 0032 |
| Solar System | B 0033 |

$\$9^{95}$ ea

air
light
static electricity
matter
mass and weight
electromagnetism

### Physical Science Chart Pack

Includes all 23 Charts above.

B 0034 $\$199$

# Discover the exciting world of ELECTRONICS with a kit from Dick Smith Electronics

OVER 30 YEARS OF EXPERIENCE

**Are you interested in electronics? Does the idea of constructing your own circuits and functional gadgets appeal to you? Well then Dick Smith Electronics can help you. We supply a fantastic range of kits from 'cybugs' to amplifiers, from special effects generators to parking radars. These kits are suited to all levels of expertise from beginners to the more advanced.**

## You Get Only Brand New Prime-Grade Components

Unlike other kit suppliers who sometimes slip in manufacturer's seconds or sub-standard components, we always give you the best.

## Guaranteed Quality

Every Dick Smith kit carries a Quality Control card, so you know that it has been thoroughly checked before it gets to you.

## Proven Designs

We test-drive every kit and catch the bugs before you do so you won't get any nasty surprises. In fact, we find and rectify faults other kit-sellers never pick up.

## Our Kits Are Very Well Packaged

We take care in packaging our kits. All new boxed kits are shrink-wrapped which means you can be sure that all the components we supply are securely enclosed within the box.

## Easy-To-Follow Instructions

We take great care to lay out instructions in a clear, easy-to-follow format. What's more, each kit contains our exclusive Guide to Kit Construction leaflet to end the "where do I start" blues – even for beginners.

## We Put Safety First

You can see before you buy them which kits are mains-powered. Plus, just to be sure, all mains-powered kits are supplied with our exclusive Mains Safety Guide.

## Spare Parts Back Up

That's right, even the special and hard-to-get parts. If you need a spare part for any current kit, ask at your nearest store and they'll get it for you!

## We Take The Hard Slog Out Of Building Kits

Let's face it, most kit builders are handier with a soldering iron than a drill or saw. That's why many of our kits have pre-drilled holes, pre-cut slots and pre-painted panels.

Electronic

## No-Risk, Money-Back Guarantee

Should you think a kit is too difficult, return it to us within seven days with a receipt and, if you haven't opened any of the inner packs, you'll get a full money-back refund.

## We Take Pride In Our Kit Range

Our range of kits is not only the largest around, it's the best! In fact, you'll find a kit to suit everyone from the absolute beginner to the highly experienced. What's more, our range is constantly being upgraded as new kits are released in magazines.

## Our Kits Are Graded

All our kits are graded with our Degree of Simplicity symbol.

Follow the simple guide (below) and you'll know, even before you start, if the kit is right for your level of expertise.

### DEGREE OF SIMPLICITY

**Easy** Designed for kit builders with **L** little experience – you only need to know how to solder and the basic principles of electronics.

**Detailed** These are slightly more complex kits which require a bit more **P** skill, and a reasonable knowledge of electronics and electricity.

**Advanced** These are for kit builders who know it all – they involve **A** virtually all aspects of electronics and electricity.

### MAINS WARNING!

Kits marked with this symbol involve 230V AC mains power wiring. Please note that handling, testing and operating mains-powered equipment can be dangerous when basic safety rules are not followed. If you're inexperienced or not confident in working with mains-powered circuits, we strongly recommend that you DO NOT attempt these kits!

FUNWAY 1
INTO ELECTRONICS
GIFT BOX
DICK SMITH

**Funway 1 Into Electronics Gift Box**

Schools and colleges throughout New Zealand use Funway 1 as a practical and fun educational aid. With no dangerous voltages or soldering, the Funway 1 Gift Box makes an ideal gift for children or adults. Comes with components, our specially manufactured reusable plastic 'breadboard' and the Funway 1 Book.

K 2605 **$44.60**

FUNWAY 1 INTO ELECTRONICS
STARTER
PACK
DICK SMITH

**Funway 1 Into Electronics Starter Pack**

20 Exciting Projects to Build! Want to learn about electronics, but haven't a clue about where to start? Then the Funway 1 Starter Pack is for you! It comprises 20 fascinating kits, is completely safe and assumes no prior knowledge of electronics. Includes Funway 1 book, Components. Morse Code Key, Screwdriver, Side cutters, 9 volt battery and 2 plastic bread boards.

K 2607 **$69.95**

SOLDERING IRON
FUNWAY 2
INTO ELECTRONICS
WIRELESS MICROPHONE
DICK SMITH

**Funway 2 Gift Pack**

Everything the beginner needs. Includes: Funway 2 book, soldering iron, solder and 9V battery. Wireless Microphone Kit to transmit voice or music to a standard "FM" radio.

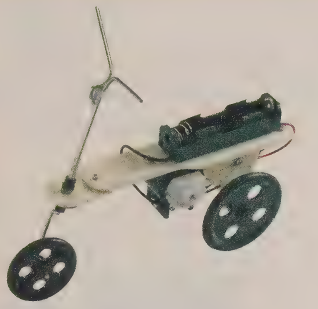
K 2620 **$54.90**

The World's Simplest Motor
Easy and Fun to Build!

**World's Simplest Motor Kit**

It's easy and fun to assemble. Just wind the small diameter coil and place across the convenient stand. Uses 1 x "D" cell battery (not included).

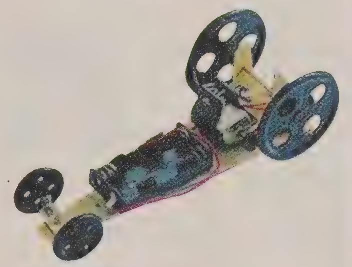
K 1046 **$14.40**



**Motorised Tricycle Kit**

Build your very own working motorised tricycle. This great kit includes a motor, wheels, and all the necessary parts. Powered by 1 x "AA" battery (not included).

K 1253 **$13.50**



**Motorised Formula 1 Kit**

This kit includes a motor, wheels, and all the necessary parts to build a real working race car. Powered by 2 x "AA" batteries (not included).

K 1254 **$16.40**

GO
mighty motor
8+

**Go Labs Mighty Motor Kit**

Build your very own motor and learn how motors work. Learn about electromagnetism and assemble a powerful electric motor boat for use in a bathtub, pool or beach. 9V battery required (not included).

K 1033 **$27.50**

GO
lemon clock
8+

**Go Labs Lemon Clock Kit**

Assemble your very own digital lemon clock and save on batteries! Utilise the electricity produced by fruit, vegetables and household cleaning materials. Learn about chemical reactions, electro-chemistry and electromagnetism.

K 1031 **$27.50**

GO
crystal radio
8+

**Go Labs Crystal Radio Kit**

Create and build your own crystal radio set with this fun and useful kit. With no tools required to create the radio, the Crystal Radio Kit is ideal for those new to kit building.

K 1027 **$27.50**

## ELECTRONICS FOR BEGINNERS

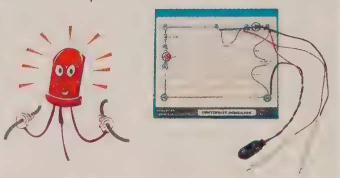
**Used by schools and colleges throughout New Zealand!**

Funway 1 kits are our best selling electronic kits for beginners. Used in schools and colleges across New Zealand, these kits teach the basics about electronics in a fun and practical way. Funway 1 assumes you know nothing about electronics and goes through the basics by showing you the components and how they piece together in circuits. It also shows you how to go on with further experiments with your circuits when they are finished. A perfect idea for kids, these kits can entertain and teach for hours. For safety reasons, no soldering is required and there are no dangerous voltages to play with.

**Please note:** These kits do not include instructions. All information is published in the Funway 1 Book (B 2600), which is necessary before construction can begin on any kit. Not suitable for children under 3 years of age. Kits contain small parts.

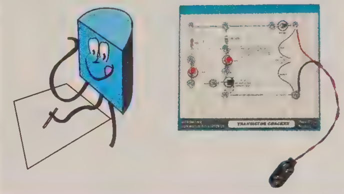
### PROJECT NO. 1
### Continuity Indicator

Just like a multimeter, it will show you if you have a complete circuit or an open circuit. A Light Emitting Diode (LED) will glow if the circuit is complete.



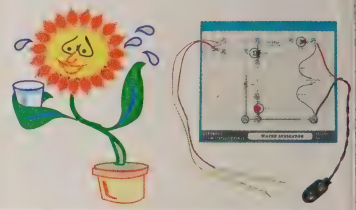
### PROJECT NO.2
### Transistor Tester

As well as telling you if your transistor is okay, it shows you how transistors work.



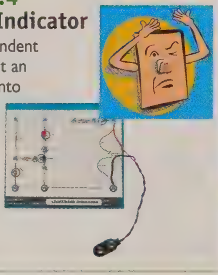
### PROJECT NO.3
### Water Indicator

Are your plants thirsty? This simple circuit will indicate how much water is in the soil.



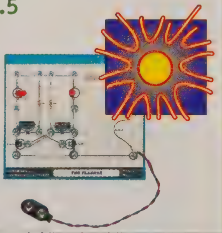
### PROJECT NO.4
### Light/Dark Indicator

Using a light-dependent resistor, it will light an LED if light falls onto it. This type of detector is used in some alarms.



### PROJECT NO.5
### Flasher

Want to add flashing lights to a model train layout? This project will do it for you!



### Funway 1
### PROJECT KIT NO.S 1-10

- Supplied with all components necessary to build any one of the first ten projects
- No soldering required, so parts can be reused to build the next project
- All projects are battery powered making them a safe and educational learning experience

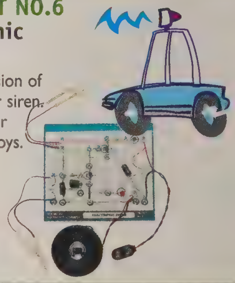
K 2600

$18^{60}

DICK SMITH ELECTRONICS
FUNWAY 1
PROJECT KITS 1-10

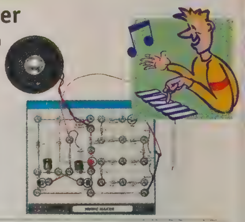
### PROJECT NO.6
### Electronic Siren

A mini version of a police car siren. Fantastic for adding to toys.



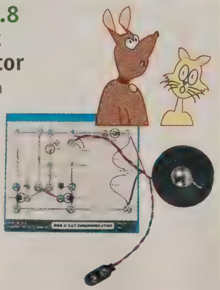
### PROJECT NO.7
### Music Maker

Make your own electronic organ and play your own tunes.



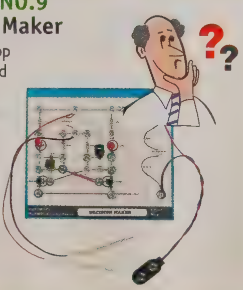
### PROJECT NO.8
### Dog and Cat Communicator

Dogs and cats can hear sounds that human beings cannot. With this great dog and cat communicator, you might be able to 'talk to the animals'!



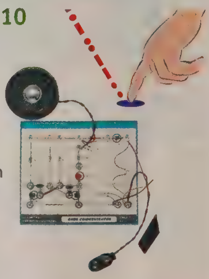
### PROJECT NO.9
### Decision Maker

As used by top executives and politicians. Just press the button and it will decide 'yes' or 'no'.



### PROJECT NO.10
### Morse Code Indicator

Amateur radio operators send Morse Code all over the world. Now you can learn the code and send secret messages.



## ELECTRONICS FOR BEGINNERS

### Another 10 exciting Funway 1 Projects to build!

Please note: These kits do not include instructions. All information is published in the Funway 1 Book (B 2600), which is necessary before construction can begin on any kit. Not suitable for children under 3 years of age. Kits contain small parts.

### Funway Into Electronics Volume 1

FUNWAY 1
INTO ELECTRONICS
Volume
LEARN ELECTRONICS THE FUN WAY!
Written by Dick Smith
DICK SMITH ELECTRONICS

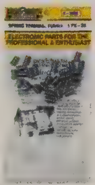
Learn electronics the fun way! This book provides hours of fun and excitement building 20 educational Funway 1 projects. Book only.

B 2600

$7.95

### Spring Terminals

These optional accessories have been designed especially for Funway 1 kits. Makes connecting and disconnecting components a breeze. Pack of 28.



K 2602

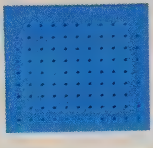
$4.80

### Plastic Breadboards

Expand your Funway 1 projects into bigger and better things with extra plastic breadboards.

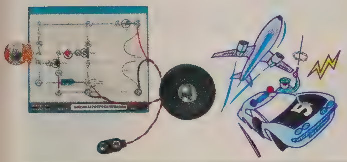
H 4050

$3.95



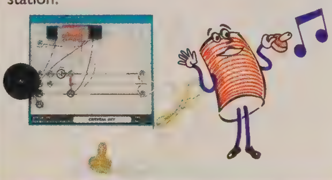
### PROJECT NO.11
### Sound Effects Generator

Ever wondered how those sound effects are made in the movies? Build this and you can make some of your own!



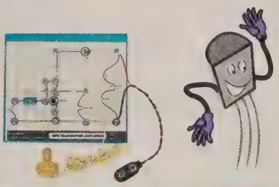
### PROJECT NO.12
### Crystal Set

Free radio! No batteries to buy, nothing to turn off. Listen in to your favourite local AM station!



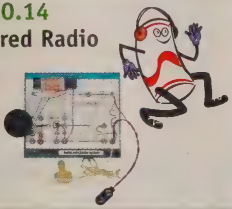
### PROJECT NO.13
### One-Transistor Amplifier

Build your own amplifier. Can be used with the Crystal Set and other projects!



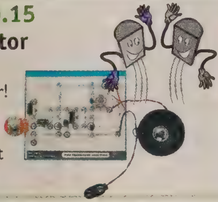
### PROJECT NO.14
### Beer-Powered Radio

Yes, it actually runs on beer or fizzy drink! Listen in but don't drink the battery.



### PROJECT NO.15
### Two-Transistor Amplifier

Even more power! Enough to drive a speaker so you can listen without headphones.



### Funway 1 PROJECT KIT NO.S 11-20

DICK SMITH
FUNWAY
PROJECT KITS 11-20

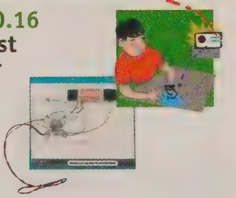
K 2610

$18.60

- Contains the more specialised components required to build any of the last ten projects (11-20) in Funway 1
- No soldering is required and there are no dangerous voltages
- You will also need the K 2600 (1-10) kit and (B 2600) book to build these projects
- Components supplied allow the construction of these great Kits, but you will need to pull them apart to build the next one!

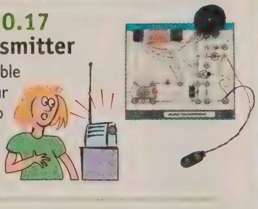
### PROJECT NO.16
### The Simplest Transmitter In Town

Allows you to transmit Morse Code across the room.



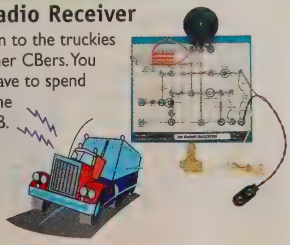
### PROJECT NO.17
### Voice Transmitter

Imagine being able to transmit your voice to a radio set! This kit makes it easy.



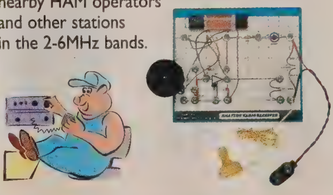
### PROJECT NO.18
### CB Radio Receiver

Listen in to the truckies and other CBers. You don't have to spend a fortune on a CB.



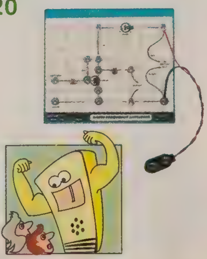
### PROJECT NO.19
### Amateur Radio Receiver

A radio receiver to listen in to nearby HAM operators and other stations in the 2-6MHz bands.



### PROJECT NO.20
### Radio Booster Amplifier

A radio frequency amplifier to give other radios even better reception!



# Funway 2 Kits

FUNWAY
2
INTO ELECTRONICS

## SOMETHING HERE FOR EVERYONE!

### Funway Into Electronics 2 takes over where Funway 1 leaves Off!

These projects are all built on printed circuit boards, which means all components are soldered into position. Therefore, a soldering iron will be required. Funway 2 teaches you how to solder, how to avoid the pitfalls, and how to use a multimeter. The projects have been specially chosen to be practical. They are all battery operated and very safe.

The Funway 2 book provides instructions for all Funway 2 kits.

Parents' Note: All Funway kits use battery power, so there are no dangerous voltages. However, Funway 2 kits involve soldering, which may require supervision if attempted by younger children. Not suitable for children under 3 years of age. Kits contain small parts.

**PROJECT NO.1**

### Flasher

- Great for electronic jewellery
- Use it as a burglar warning light, etc – the choice is yours!

K 2621

**$8.20**

**PROJECT NO.2**

### Ding Dong Doorbell

- Sounds just like an old-fashioned doorbell
- A fun and simple project to build for your home

K 2622

**$15.50**

**PROJECT NO.3**

### Morse Code Trainer

- Build this simple trainer and learn about Morse Code
- Now you can tap out those secret messages to your friends

K 2623

**$22.80**

**PROJECT NO.4**

### Universal Timer

- Are the eggs too hard? Time them with this handy little device
- Can be set for as little as a few seconds to about 15 minutes

K 2624

**$19.20**

### Funway Into Electronics Volume 2

FUNWAY 2
INTO ELECTRONICS
Volume
LEARN ELECTRONICS THE FUN WAY!
Written by Dick Smith
DICK SMITH ELECTRONICS

Learn Electronics the fun way! This book provides hours of fun and excitement building 20 educational Funway 2 projects. Book only.

B 2605

**$9.95**

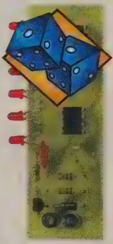
**PROJECT NO.5**

### Electronic Dice

- Just as much fun to use as it is to build them
- They really pick randomly – there's no cheating with these dice!

K 2625

**$15.50**



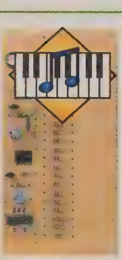
**PROJECT NO.6**

### Mini Organ

- Play a tune – it's easy!
- Uses the back of the PCB as the keyboard

K 2626

**$17.80**



**PROJECT NO.7**

### Pocket Transistor Radio

- A fun way to teach yourself about the fundamentals of radio.
- Build your own receiver and then have fun using it.

K 2627

**$18.90**

**PROJECT NO.8**

### Touch Switch

- Ever wondered how those lift-buttons work? Build this touch switch and you'll be able to work it out.

K 2628

**$15.50**

**PROJECT NO.9**

### Mosquito Repeller

- Do mozzie repellents really work?
- Build this and you'll find out how and why.
- You won't hear it but the mozzies certainly will!

K 2629

**$16.70**

**PROJECT NO.10**

### Audio Amplifier

- Use it to make the intercom (Project No.18), or as a general purpose amplifier
- It's handy and has great sound output

K 2630

**$15.50**

## SIMPLE, ECONOMICAL AND FUN!

### PROJECT NO.11

**Wireless Microphone**

- Transmits to any standard FM radio – even one in another room or next door

K 2631

$16.20

### PROJECT NO.12

**Light-Activated Switch**

- Useful in many security applications around the home
- If a light goes on, the switch activates

K 2632

$12.70

### PROJECT NO.13

**Metal/Pipe Locator**

- Extremely handy for locating pipes, wires, etc in walls before drilling holes
- A simple but effective circuit

K 2633

$15.80

### PROJECT NO.14

**Sound-Activated Switch**

- Activated by sound
- Use it as a telephone bell extender without breaking phone regulations

K 2634

$19.20

*Please Note:*

*These kits do not include instructions.*

*All information is published in the Funway 2 Book (B2605) which is necessary before construction can begin on any kit*

### PROJECT NO.15

**Home/Car Alarm**

- By constructing this simple circuit, you will learn the basics of alarms

K 2635

$19.80

### PROJECT NO.16

**Electronic Siren**

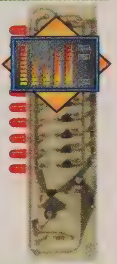
- Just what you need to go with the Funway 2 Home/Car Alarm
- Also makes a terrific sound effects circuit

K 2636

$16.20

### PROJECT NO.17

**LED Level Display**



- Hook it up to your stereo and it can warn you of dangerous overloads

K 2637

$16.20

### PROJECT NO.18

**Intercom Unit**

- Build your own intercom and use it around the house
- Practical and simple to build

K 2638

$19.95

### PROJECT NO.19

**LED Counter Module**

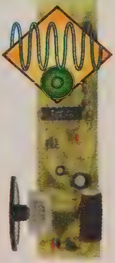
- A perfect introduction to integrated circuits
- Can be adapted to a huge variety of counting applications

K 2639

$23.50

### PROJECT NO.20

**Shortwave Receiver**



- With simple modifications, listen to emergency services and amateur broadcasts!

K 2640

$21.20

DISCOVERY SERIES

Discover the exciting world of electronics with our Discovery Series!

All PCBs come solder-masked with screened component overlays. Each kit is supplied complete with easy-to-follow instructions.

**L**

### Mini Stereo Amp Kit

Can be used for either stereo or bridge (mono) applications. Power source required: 9 volt battery. Power supply range: 1.8V to 15V. Frequency response: Stereo - 130kHz into 8 Ohms; Mono Bridge - 70Hz - 20kHz into 8 Ohms. Sensitivity: Stereo - 30mV input for 1W/ch at Vcc = 9 Volts; Mono Bridge - 80mV input for 2W output at Vcc = 12 Volts. Supplied with components and PCB. Case optional (use H 2855). PCB size: 22mm x 50mm.

K 2806

**$19.40**

**L**

### Stereo Pre-Amp Kit

Upgrade your bare power amplifiers into a complete audio system with this quality pre-amp. Features volume, bass, treble and balance controls. Circuit provides an extra input to both channels that can be used for either multi-channel mixing or gain control applications Frequency response: 4Hz to 80KHz. Input Impedance: 40K ohms. Output Impedance: 100 ohm. Voltage gain: 3.5V/V (11dB). Power source required: 9 volts to 36 volts. Supplied with components, PCB and pots. Case optional (use H 2852). PCB size: 56mm x 122mm.

K 2811

**$44.60**

**L**

### Fibre Optic Audio Link Kit

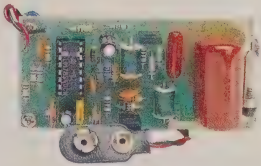
Great for applications where interference-free data is required; Has provision for both microphone and an auxiliary input; Suitable for high level signals such as VCR, tuner and tape recorder outputs; Power source required: 9 volt battery; Supplied with components, PCB, Mic insert, 4 metres of fibre optic cable and a pair of transmitter and receiver devices. Case optional (use H 2855). PCB size: 23mm x 78mm.

K 2803

**$64**

**P**

### Xenon Flasher



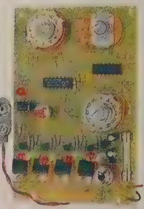
Once constructed makes a handy bike or hazard lamp. Great as an emergency beacon, strobe for parties or just something to impress your friends. For an even brighter light, an optional torch reflector can be used. Features variable flash rate via trimpot adjustment; Power source required: 9 volt battery; Supplied with components, PCB and mini linear xenon tube. Case optional: (use H 2853). PCB size: 40mm x 82mm.

K 2809

**$45.60**

**P**

### Light Sequencer



Can be used as a simple light sequencer or light chaser for decorations, party lights or advertising signs. Four lamp outputs are provided. Drives either filament lamps or LED's up to 2 amps. Total channel output of 24 watts. Power source required: 8 volts to 18 volts DC. Supplied with components, PCB and hardware items. Case optional (use H 2851). PCB size: 83mm x 130mm.

K 2812

**$47.20**

**L**

### Flash, Dash Or Crash

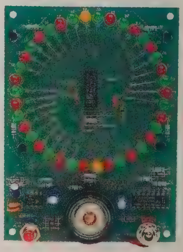
An exciting game of patience, coordination and skill. Uses 16 LED's which operate in sequence. The game requires you to 'climb' the ladder of LED's by pushing a button. Has automatic power cut-off. Power source required: 4x "AA" batteries (not included). Supplied with PCB and all necessary components. Case optional (use H2851). PCB size: 43mm x 150mm.

K 2800

**$26.40**

**P**

### Roulette Wheel



Just like running your own mini Casino. Has two zeros (0 & 00) and 36 numbers. Simply press the button to set the ball rolling. Makes a clicking sound as each number is passed, imitating a ball rolling over pockets. Power source required: 9 volt battery. Supplied with components, PCB and necessary hardware such as mini speaker and switches. Case optional (use H 2852). PCB size: 91mm x 124mm.

K 2804

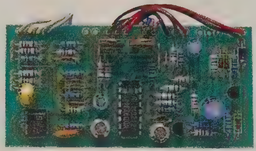
**$36.80**

# DISCOVERY SERIES

### L Regulated Power Supply Kit

Regulated output - 1.2 volts to 37.5 volts. Current - 1.5 amps. With built-in current and overload protection. Can be configured as a fixed or variable voltage regulator, voltage regulator with programmable current limiting, combined voltage/current limiting (for lead/acid battery charging) or constant current source (for NiCad battery charging). Power source required: 4 to 28 Volts AC. Supplied with components and PCB. Case optional (use H 2320). PCB size: 5cm x 5cm.
K 2808

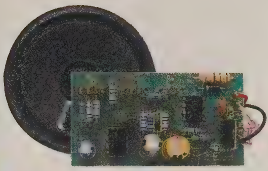
$\$25^{60}$



### P Wave Form Generator Kit

Frequency range: 10Hz to 100KHz; Both amplitude and frequency are voltage controlled; Combine two of these to make an audio sweep generator; On board voltage regulation to ensure good stability; Power source required: 9 volt battery or any DC supply between 8.5 and 15 volts; Supplied with components, PCB and hardware such as pots and switches; Case optional (use H 2851); PCB size: 43mm x 87mm.
K 2802

$\$29^{80}$

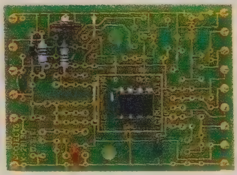


### L Siren Generator

Create four different siren sounds. Power source required: 6 or 9 volt battery. Supplied with components, PCB and hardware such as switches, battery snap and speaker. Case optional (use H2853).
K 2801

$\$29^{80}$

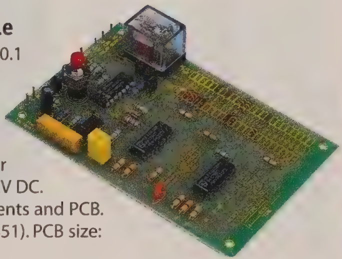
### L Multi 555 Timer Kit



Circuit uses a 555 timer IC as a building block for timer projects Allows a timer or pulse generator to be quickly and cheaply put together with just a few parts. Capable of operating relays directly, and is easier to set up for those utility projects. Comprehensive instruction manual supplied showing many circuits and overlays for different timing configurations. Power source required: 4.5 volts to 16 volts DC. Supplied with components and PCB. Case optional (use H 2855). PCB size: 44mm x 61mm.
K 2813

$\$27^{40}$

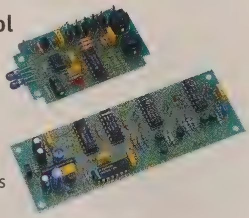
### P Multi-Timer Module



Timing range between 0.1 sec. and 19.4 days. Can be configured for single cycle operation or for continuous repeat until reset. Power source required: 9V - 12V DC. Supplied with components and PCB. Case optional (use H 2851). PCB size: 74mm x 113mm.
K 2807

$\$39^{70}$

### P Infrared Remote Control



4-channel infrared remote control. With hand-held transmitter and matching receiver. Features selectable security code to give immunity against false triggering and prevent operation by other transmitters. Receiver has 5 outputs which are all capable of directly driving relays. Data outputs can be made to operate in either momentary or toggle (push/on - push/off) mode. Transmitter range - 15 mtrs (typical). Power source required: Rx - 8 volts to 12 volts DC, Tx - 9 volt battery. Supplied with components and PCB. Case optional.
K 2810

$\$51^{80}$

### P Parallel Port Interface Kit

Connects to a parallel centronics printer port on your computer. Able to sense data, process it and use the results to control relays, motors, solenoids etc. Can monitor 10 analogue voltages. Drive 8 digital outputs. Generates 2 variable voltages. Includes simple programs that can be manipulated to suit your needs. Power source required: 9 volt battery or DC supply. Supplied with components, PCB and 25 pin "D" type connector. Case optional (use H 2851). PCB size: 68mm x 145mm.
K 2805

$\$53^{40}$

## Velleman Mini Kits

HIGH-Q velleman·kit

Velleman Mini Kits are a new series in the large family of already existing Velleman kits. These simple and easy to build kits are specially designed for people who are taking their first steps into the exciting and fascinating world of Electronics. But they can also be used by professionals. Velleman also offers free technical support via the internet on **www.velleman.be** to allow for hassle-free kit construction.

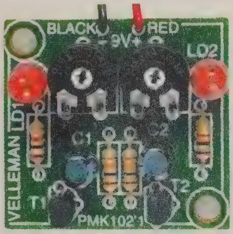
Two international veterans of electronic kit supply, Velleman of Europe and Dick Smith Electronics, have allied to provide unparalleled choice to Australasian kit enthusiasts. The Velleman kit range has everything from these simple, fun Mini Kits to high end glass audio.

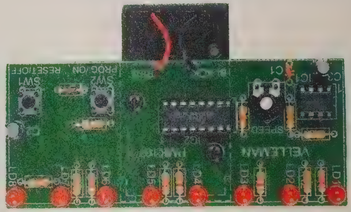
L

### Flashing LED Minikit

This simple mini kit can be used for model construction. Supplied with pre-cut circuit board and required components. Features adjustable flashing speed. Power source 9V battery (not included).
K 1323

**$9.40**



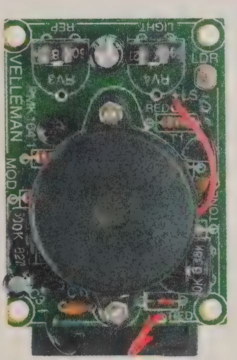


L

### Running Light Minikit

Features different LED running effects with adjustable speed. Supplied with pre-cut circuit board, 8 LEDs and required components. Power source: 9V battery (not included).
K 1328

**$15.90**



L

### Cricket Minikit

Can be used for fun or to simulate a hot summer night. Automatically comes on when it gets dark. Adjustable cricket chirp effect and speed.

- Supplied with pre-cut circuit board and required components.
- Power source required: 9 volt battery (not included).

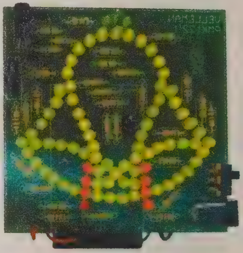
K 1325

**$14.95**

L

### Animated Bell Minikit

This colourful animated bell consists of 83 LEDs. Kit is supplied with pre-cut circuit board, LEDs, on/off switch, and all required components. Power source required: 9-12 volt DC adaptor or 9-volt alkaline battery (not included).
K 1338

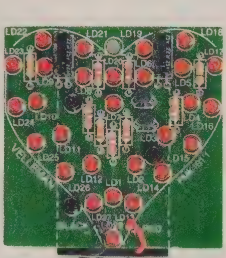


**$19.80**

L

### Sweetheart Minikit

The perfect Valentine's Day gift. Ideal as a fun and heart warming decoration. Show your love in an original way that your heart still beats faster for him or her. Supplied with pre-cut circuit board, 28 LEDs and all required components to form two blinking hearts. Power source required: 9 Volt battery (not included).
K 1322



**$13.95**

L

### Deluxe Xmas Tree Minikit

The Christmas spirit lights up with this deluxe Christmas tree mini kit. Colourful Christmas tree consists of 134 LEDs, with 18 of these LEDs acting as randomly blinking candles.
K 1335

**$34.95**

HIGH-Q velleman-kit

Exclusive to Dick Smith Electronics, these Velleman kits are produced and assembled in Belgium. Each kit comes with a re-usable plastic container, pre-screened and pre-drilled PCBs and all components are stripped in order of assembley.

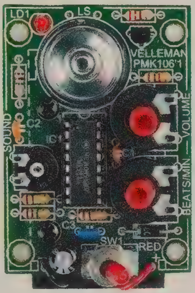
**L**

## Metronome Minikit

Features LED beat indicator, adjustable volume and beats per minute. Supplied with pre-cut board and required components. Power source: 9V battery (not included).

K 1327

$\$16^{60}$



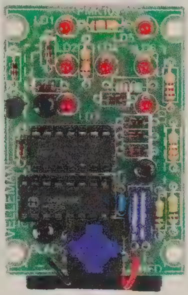
**L**

## Electronic Dice Minikit

Electronic die with LED indication. Rolls slowly out after releasing the push button. Use it with all your board games. Supplied with pre-cut circuit board and required components. Power source required: 9 volt battery (not included).

K 1330

$\$15^{90}$



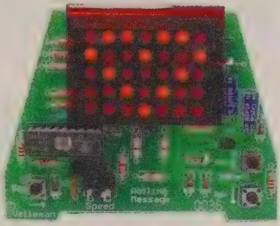
**L**

## Rolling Message Minikit

Create your own moving message with this 35-LED graphic display. Maximum of 16 characters. Adjustable scrolling speed. Power Source Required: 9V battery (not included).

K 1339

$\$32^{80}$



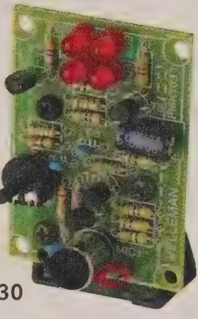
**L**

## Sound & Light Minikit

Different applications such as: sound indicator, simple sound-to-light unit for music, for the hard of hearing: can be used to indicate the telephone, doorbell, or barking dog. Supplied with pre-cut circuit board and required components. Power source required: 9 volt battery (not included).

K 1324

$\$13^{30}$



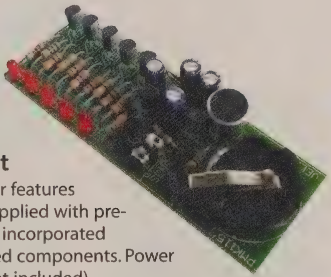
**L**

## Sound Level Minikit

Pocket sound level meter features adjustable sensitivity. Supplied with pre-cut circuit board, 5 LEDs, incorporated microphone, and required components. Power source: 3 volt battery (not included).

K 1334

$\$15^{70}$



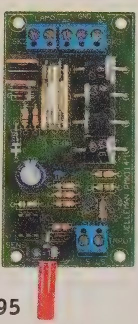
**L**

## Light Organ Minikit

Make lamps flash to the rhythm of the music. Operates at a safe, low voltage level. Features optically isolated speaker input and adjustable sensitivity. Supplied with pre-cut circuit board and required components. Power source: 12V to 24V DC (not included).

K 1333

$\$19^{95}$



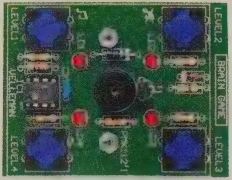
**L**

## Brain Game Minikit

4 LEDs and 4 push buttons provide hours of fun. Aim of the game is to repeat the pattern that is generated at random. The pattern is played both visually and audibly or visually only (selectable). The replay speed gradually increases during the game to make it even more challenging. With 4 difficulty levels. Microprocessor controlled. Power source 3 x "AA" batteries (not included).

K 1337

$\$33^{80}$



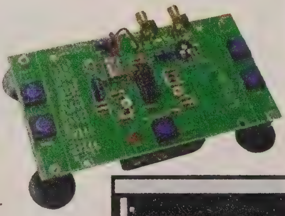
**P**

## TV Game Minikit

Have hours of fun playing TV ping pong . Video and audio output, adjustable brightness, auto power off and one player mode, with four difficulty levels. Also a two player mode. Battery operated: 3xAA (not included).

K 1340

$\$44^{20}$



Screen shot

# Velleman Mini Kits

HIGH-Q velleman-kit

Exclusive to Dick Smith Electronics, these Velleman kits are produced and assembled in Belgium. Each kit comes with a re-usable plastic container, pre-screened and pre-drilled PCBs and all components are stripped in order of assembley.

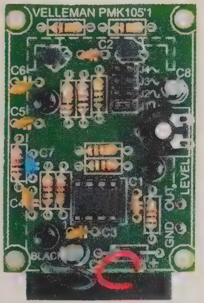
**L**

## Signal Generator Minikit

Signal output produced includes sine wave, triangle and square wave. Signal frequency is approx. 1KHz fixed. Supplied with pre-cut circuit board and required components. Power source 9V battery (not included).

K 1326

$\$12^{40}$



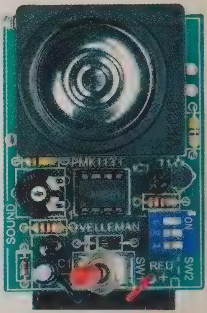
**L**

## Sound Generator Minikit

Generates 4 different sounds: police siren, fire brigade, emergency vehicle, and machine gun. All with adjustable sound pitch. Supplied with pre-cut board, PCB speaker and required components. Power source: 9V battery (not included).

K 1332

$\$21^{30}$



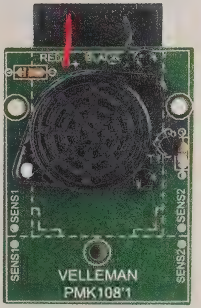
**L**

## Water Alarm Minikit

Gives alarm sound when water is detected. Incorporated alarm buzzer. Water sensor can be placed at a distance by cutting the board and using wires to connect the sensor. Supplied with pre-cut circuit board, alarm buzzer and required components. • Power source required: 9 volt battery (not included).

K 1329

$\$11^{90}$



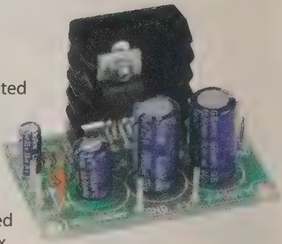
**L**

## 7W Amplifier Kit

This small amplifier is constructed around the TDA2003 IC, capable of delivering 4W RMS at 4ohms. The IC is thermally and short-circuit protected. A conventional direct current can be connected as supply. PCB dimensions: 55 x 35mm.

K 1513

$\$35^{55}$



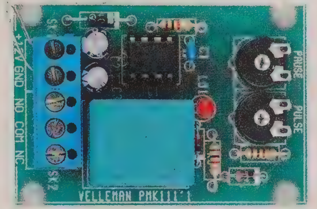
**L**

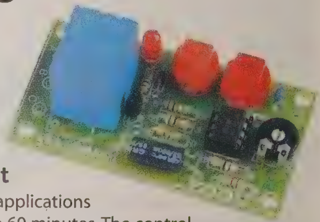
## Timer Minikit

For intermittent operation of circuits and equipment. Adjustable pulse between 0.5-5 secs. Pause time between 2.5-60 secs. Supplied with pre-cut board and components. Power source required: 12V.

K 1331

$\$15^{60}$





**L**

## Start/Stop Timer Kit

A miniature timer for all applications requiring a delay of up to 60 minutes. The control range is adjustable. Power supply: 15V DC/55mA. Time interval (without modifications) is adjustable from 0 to 15 minutes. PCB dimensions: 38 x 69mm.

K 1503

$\$35^{55}$

new for 2002

**L**

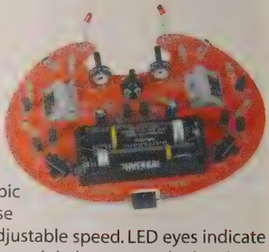
## Running Bug Kit

Light-sensitivity adjusts to suit most conditions. Allows control of the kits 'bug-like' behaviour. LED eyes indicate direction of movement. Stops in total darkness. Supplied with pre-cut board, LEDs' and all required components.

K 1341

$\$36^{40}$

new for 2002



**P**

## Crawling Bug Kit

Crawling Bug Mini Kit Phototropic - it's driven towards light. Choose between two different walks. Adjustable speed. LED eyes indicate direction of movement. Stops in total darkness. Supplied with pre-cut board, LEDs' and all required components.

K 1342

$\$40^{20}$

# LEGO MINDSTORMS

### LEGO Mindstorms Dark Side Developer Kit

Bring to life destroyer droids that charge forward and All Terrain Armoured Transports (AT-AT) that stride on four legs – as well as hundreds of your own inventions inspired by Star Wars. Powered by the Micro Scout, the smallest LEGO microcomputer. Kit includes the LEGO Micro Scout microcomputer, Constructopedia building guides packed with building instructions and challenges, 578 LEGO building pieces, and more! No PC is required.

K 1486

**$129**

### LEGO Mindstorms Robotic Invention System 2.0

The RIS 2.0 lets users ages 12 and up design, build and programme real robots that do almost anything. The RCX uses light, touch and other sensors to receive input form its environment, process data and signal output motors to turn on and off. RIS 2.0 includes the RCX microcomputer, more than 700 LEGO elements, a USB Infrared Tower Transmitter, touch and light sensors, motors, gears, a Constructopedia building and inspiration guide, and the RCX Code programming language on CD-ROM.

K 1488

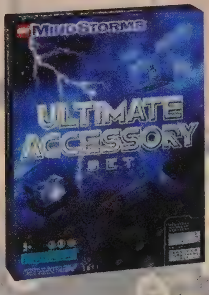
**$399**

### LEGO Mindstorms Ultimate Accessory Set

The Ultimate Accessory Set comes with all you need to make your robotic inventions more powerful, aware, and capable. The set includes two sensors, a LEGO Lamp, extra building elements, and a remote control.

K 1484

**$129**



### LEGO Ultimate Builders Set

Combine the Ultimate Builders Set with the Robotics Invention System to discover the secrets of the real master builders. Use the Tabletop Cleaner to clean your desk or the Aerial Tram to move objects across your room suspended on a wire! Kit includes 316 LEGO building pieces, a 9V motor, pneumatics, special elements, 3D building instructions, 7 advanced projects and more.

K 1489

**$129**

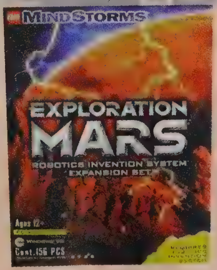
### LEGO Mindstorms Exploration Mars

Lets you build and program inventions that simulate the tasks of actual Mars missions. This expansion set for the Robotics Invention System (K 1488) allows you to build robotic rovers and equipment for a Mars expedition.

K 1483

**Limited Stock**

**$99**

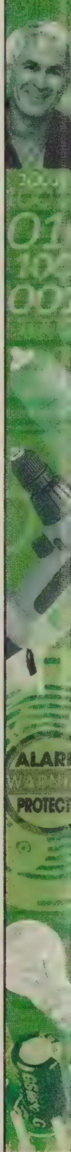


### LEGO Mindstorms Movie Maker Set

Bring the imaginative adventures in your LEGO world to life. Includes a PC movie camera, editing software, and an assortment of LEGO props and unique elements. The software consists of a real movie editing suite just like the pros use, but easy enough for an 8-year-old. You'll be editing your first movie in about 20 minutes.

K 1497

**$299**



**L**

## Universal Voltage Regulator Kit

Power almost any battery-operated device from a car battery or DC power adaptor up to 1.5A. By changing the resistor value on the PCB you can step-down voltage to 3V, 4.5V, 6V, 9V or other voltages within the range. Has an output voltage range of 1.2V - 37 Volts DC (depending on input voltage). Features thermal overload and short circuit protection. Supplied with components and PCB. Case option (use H 2305).

K 3592

**$15⁵⁰**

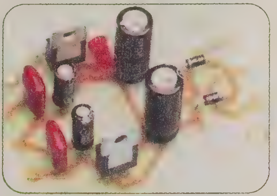
**L**

## Universal Regulator Kit

A low cost, regulated DC power circuit suitable for powering external peripherals from a PC, or for powering a CD player from a car lighter socket etc. Uses jumper links to preset output voltage between 3V to 15V and offers output current up to 1.5 amp (use optional heatsink). Power source up to 25 volts DC is required. Supplied with components and PCB. Case optional. (H 2855) PCB size: 19mm x 52mm.

K 3594

**$16²⁰**



**P**

## Universal Power Supply Kit

Can be used in a variety of ways as either a single or dual supply. Designed so that constructors can obtain many different voltages: +15V, -15V, +/-15V, +18 to 22V, or less than 15V. Power source required: Power adaptor or transformer (depending on individual requirements). Supplied with PCB and instructions. Case optional (use H 2853). PCB size: 53mm x 71mm. Components shown are for display purposes only (not included)

K 3435

**$12⁸⁰**

**L**

## Mini 1.5V To 9V DC Converter Kit

Here's an easy way to replace those expensive 9V batteries with cost-efficient 1.5V cells. Easy-to-build, uses just three components. Allows any type of 1.5V cell (AA, C, D, N or AAA) to replace a more expensive 9V battery. Supplied with components and PCB. Case optional (use H 2855). PCB size: 17mm x 43mm.

K 3231

**$19⁴⁰**

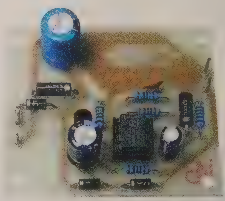
**P**

## Battery Charger Regulator Kit

Turns a 'bare bones' 12 volt automotive battery charger into a fully regulated charger. Circuit can be left connected to a battery indefinitely. Designed to adapt an Arlec 4 amp charger or similar unit.

K 3127

**$34⁶⁰**



**L**

## Solar Generator Kit

Cheap, no fuss way to trickle charge a 12V lead acid or gel cell battery using a solar panel. Ideal for any area where mains power is unavailable. Supplied in short form with PCB and components.

K 3129

**$14⁷⁰**

**L**

## Nicad Battery Discharger Kit

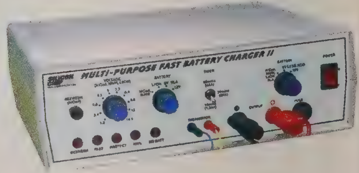
Has switchable voltage (3.6, 4.8, 6.0, 7.2, 8.4, 9.6, 10.8 and 12V). Automatic cut-off. Ideal for most types of NiCads as used in camcorders, cellular phones and radio-controlled cars. Current discharge of 50mA or 200mA. Power source required: nil. Supplied with components, hardware, case, and pre-punched, screened front panel.

K 3126

**$38⁴⁰**

7.2 8.4
6.0 9.6
4.8 10.8
3.6 12.0
BATTERY VOLTAGE (1.2V/cell)
DISCHARGING
NI-CAD BATTERY DISCHARGER
K-3126
START
CURRENT
50mA
DICK SMITH ELECTRONICS

new for 2002



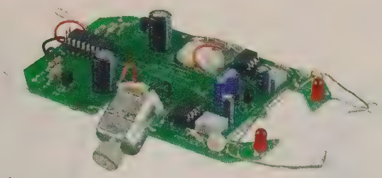
**A**

## Kit Universal Charger MkII

Originally designed to fast charge NiCad and NiMH batteries, this new improved version now also charges Li-Ion, SLA and Lead-Acid batteries. Features short circuit battery protection, time out protection, over and under temperature cutouts, and multi-LED charge indicators. Includes all components, PCB, case and instructions.

K 3217

**$268**



P

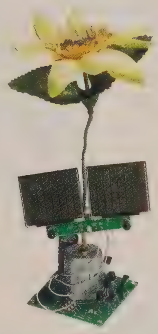
## Cybug Robot Bug Kit

Make a self-propelled robot that copies the behaviour of simple insects like a cockroach. Designed from simple analogue circuitry, Cybug can sense and move away from physical objects like walls and furniture, can be light seeking (phototropic) or light avoiding (photophobic). Comes with high quality PCB and all components. Consists of just 3 IC's, low power regulator and components.
K 3560

**$74**

P

## Cybug Power Plant Kit



This unique kit is both ornamental and instrumental! The Power Plant will continually rotate, looking for the brightest light source that it can find, much like a natural flower rotates to face the sun. Forever twisting and twitching, the Cybug Power Plant gathers the maximum solar energy which may be sent to a feeding station for nourishing Solar Flies.

The kit makes a very cool desk accessory for the executive that has everything!

Kit supplied with PCB, solar panels, motor, all components and hardware, and instructions.
K 3563

**$64**

P

## EPROM Programmer Kit

Flexible and powerful programmer. Controlled via the parallel port on an IBM compatible PC. Can handle EPROMS from 2716 (2K x 8) to 27256 (32K x 8) and it will also program 2816 and 2864 electrically-erasable (EE) PROMS. Power source required: 12 Volts AC, supplied with components, hardware including two quality EPROM test sockets, case, prepunched screenfront panel and display PCB
K 3602

**$147**

P

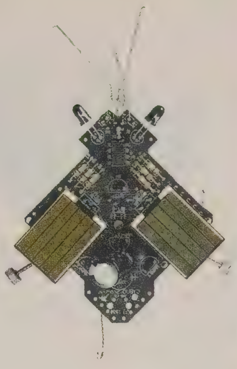
## UHF 2 Channel Remote Kit (433MHz)

This handy UHF remote control can control two devices independently of each other. It's ideal for controlling car alarms and for switching other devices, such as house alarms, on and off. It features latched or momentary relay output for each channel. Features high security - 4096 possible code combinations. Comes with a compact ready-made key ring transmitter and features latched or momentary relay output for each channel.
K 3262

**$109**

P

## Cybug Solar Fly Kit



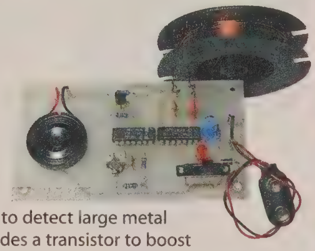
The Cybug Solar Fly is a robotic life-form whose energy source comes directly from the sun. Always in search of a better feeding area, the Cybug will explore its surroundings and make its way towards the sunniest spot it can find.

This solar powered Cybug is easy to build and educational. Very active in direct sunlight, its sensitive infra-red eyes continually cause this Cybug to move towards the brightest object it sees. The Fly's feelers help it navigate its way around obstacles. It even has short-term memory about objects it comes into contact with! Kit supplied with PCB, all components and hardware, motor, solar panels, and instructions.
K 3562

**$86**

L

## Basic Metal Detector Kit

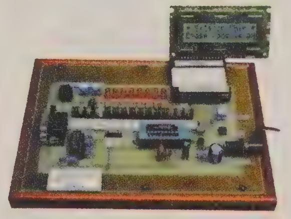


This simple but educational kit demonstrates the principles involved in metal detection. Utilising an air-cored choke, it can be used to detect large metal objects at close range. Includes a transistor to boost signal levels and specially designed coil with extra width for high metallic sensitivity.
K 3007

**$\$28^{40}$**

P

## PIC Programmer Kit

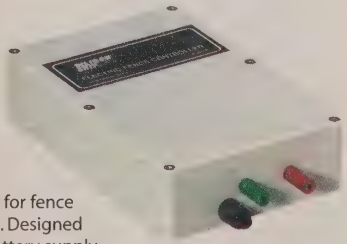


This combined PIC programmer and test bed supports PIC16C84, PIC16F84 and PIC16F84A microcontrollers. Simple programming via windows-based software. Kit supplied with PCB, LCD, all components, and instructions. Wood base not included.
K 3603

**$124**

L

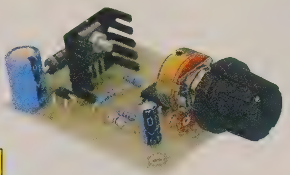
## Electric Fence Kit



This electric fence controller is suitable for fence runs up to 5km long. Designed to run from a 12V battery supply (not included) which is stepped up to 240VDC via a DC to DC converter and has also been designed to comply with AS/NZS 3129. Kit includes a high quality sealed weatherproof case.
K 3009

**$97**

## MOTOR CONTROLLER KITS



L

### DC Motor Controller Kit

Circuit is designed to control 12VDC mini drill motors or lights with currents up to 1 amp. Employs the pulse-width modulation (PWM) technique to send bursts of current to the motor, providing an efficient means of varying motor speed. Power source required: 12V DC. Supplied with components, PCB and heatsink for switching transistor. Optional case (use H2853). PCB size: 43mm x 61mm.

K 3070

**$19<sup>30</sup>**

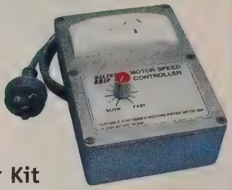
L ⚡

### Motor Speed Controller 240V 5 Amp Kit

Designed to regulate the speed on heavy-duty power tools. Ideal for circular saws, electric drills, lawn edgers, jig-saws, sanders and other equipment. Rated at 5 amp. Suitable only for "brush" type motor. Triac controlled. Power source required: 240V AC. Supplied with pre-punched black anodised and screened front panel, components, PCB, hardware including flush mount mains socket and case.

K 3085

**$65**



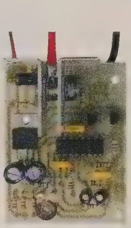
A ⚡

### Speed Controller Kit

Use with routers, jigsaws, grinders, circular saws, electric whipper snippers, electric weed eaters etc. Control available from fully stopped to maximum speed. Uses modern switch mode power supply techniques. Rating of up to 10A @ 240V. Constructed in safe, earthed diecast case. Interference suppression included. Power source required: 240V AC. Supplied with all components, PCB, pre-punched diecast case and screened front panel. Not suitable for induction or shaded pole motors.

K 3087

**$164**



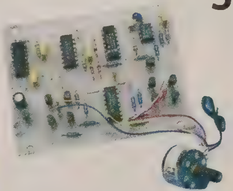
L

### Speed Controller Kit

Provides high current speed control for 12 and 24V DC systems. Maximum current 20 amps. Pulse-width modulated. Ideal for controlling 12V DC motors in cars (e.g. pumps for fuel injection, water/air intercoolers and water injection systems). Can also be used for headlight dimming in the daytime and for running 12 volt motors and pumps in 24 volt vehicles. Power source required: 12-24V DC. Supplied with components and PCB. Case optional (use H2853).

K 3072

**$33<sup>30</sup>**



L

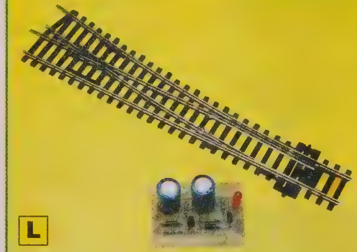
### Stepper Motor Controller Kit

Suitable for small stepper motors. With forward /reverse direction. Can be used in a variety of applications such as controlling a model railroad boom gate. Designed to suit motors which just draw a few hundred milliamps at 12V. Power source required: 12-16V DC. Optional case (use H2851). PCB size: 76mm x 97mm.

K 3074

**$29<sup>30</sup>**

## MODEL TRAIN KITS



L

### Model Rail Point Controller Kit

Operate your model railway points remotely. Circuit is designed to operate an optional twin solenoid that is available from most hobby model stores. Power source required: 12 to 15 volts AC/DC. Case optional (use H2853). PCB size: 40mm x 52mm. Points not included.

K 3031

**$14<sup>40</sup>**

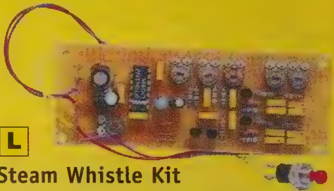
P ⚡

### Train Controller Kit

This easy to build and compact model train controller features pulse power for smooth low speed control and track voltage LED indication. It is designed to work with any standard 12 Volt model train supply or even a 12 Volt battery charger. It is rated up to 2 Amps and features full pulse power control for very smooth operation at all speeds. Kit supplied with PCB, case, front panel label, and all components. Power source required: 230V AC.

K 3020

**$83**



L

### Steam Whistle Kit

This compact simple circuit can provide your model with a distinctive steam whistle sound, giving your model that extra touch of realism. Project design allows constructor to change almost every aspect of the emitted sound, by simply adjusting trimpots. Kit is supplied in short form with components PCB and mini speaker. Power source required: 12V DC (not included). Case optional (use H2853).

K 3021

**$24<sup>30</sup>**

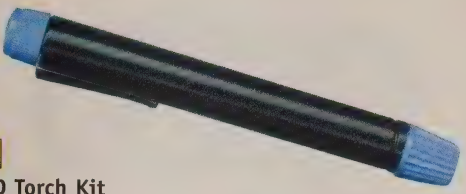
P

### Diesel Sound Simulator Kit

Give your model railway that true-to-life sound. Easy-to-build and fits inside most locomotives (speaker included). Takes its power from the rails. With clever circuitry, the pitch reflects the loco motor's speed. Supplied with components, PCB and mini speaker. Case optional (designed to fit into locomotive). PCB size: 27mm x 103mm

K 3030

**$26<sup>20</sup>**

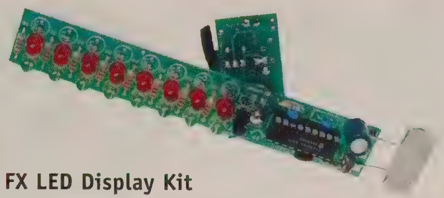


L

## LED Torch Kit

Build a solid-state torch with a white LED. Receive high brightness with cool white light, low battery drain, and you will never need to replace a torch bulb again. Supplied with all components, including white LED, PCB, and mini torch.
K 3018

$^{\$}19^{80}$

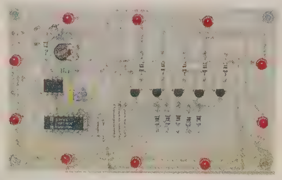


P

## Spin FX LED Display Kit

The Spin FX is a microprocessor-based LED display that can generate a wealth of psychedelic light patterns. Kit supplied with PCBs, LEDs, a small DC electric motor, components, pre-programmed PIC, and instructions. Power source required: 9-12V DC.
K 3005

$^{\$}49^{80}$

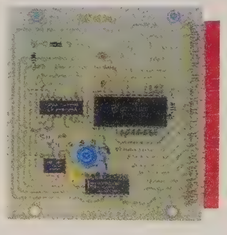


L

## LED Chaser Kit

Ideal for store front displays or any other place you want to draw attention. Has 10 LEDs flash in rotation around the edge of the board. Adjustable speed. Power source required: 6V DC. Supplied with all components, PCB and LEDs. Case optional (use H2851). PCB size: 83mm x 134mm.
K 3166

$^{\$}24^{80}$



L

## Knightrider Scanner Kit

With this kit you can now simulate the car KITT in the TV series Knightrider. PCB carries a row of 16 LEDs which are scanned back and forth continuously. Features variable scan rate. Power source required: 9V to 12V DC. Supplied with components and PCB. Case optional (use H2852). PCB size: 85mm 94mm.
K 3168

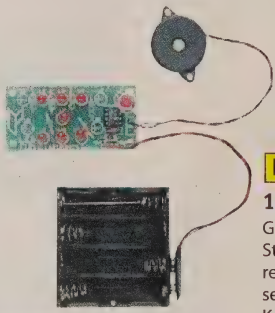
$^{\$}32^{40}$

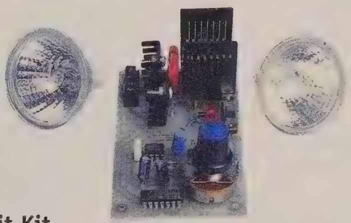
L

## PIC-Based LED Fun Kit

Have fun and learn about microcontrollers. One board lets you construct eight different projects including a timer, dice roller, mini alarm and more. Includes buzzer, LEDs, programmed IC (PIC) and all components. Power supply required: 3V DC.
K 3167

$^{\$}25^{30}$





L

## 12V Flasher Unit Kit

Great for signs or parties. Uses just 1 x 555 timer and 1 x Mosfet. Strobe (1 lamp) or flasher (2 lamp) operation. Power source required: 12V AC or DC. Supplied with all components, PCB and semiconductors. Lamps extra.
K 3169

$^{\$}28^{70}$

A

## Disco Strobe Kit

Provides a high-energy flash of white light. Variable flash rate from 1-10 flashes per second. More than one unit can be linked to flash in synchronisation. Power source required: 240V AC. Supplied with components, hardware, PCB, deluxe plastic case, screened perspex front panel, linear 100mm Xenon tube and commercial high-efficiency reflector.
K 3155

$^{\$}188$

A

## Disco Light Kit

Drives four lighting channels (maximum load 2400 watts). Can be controlled from your stereo or its own built-in microphone. Has forward, reverse, auto-reversing chaser patterns and adjustable strobe rates. Simultaneous strobe on all channels and alternate light mode. Power source required: 240V AC. Supplied with PCB, all components, case, hardware and pre-punched, screened front panel.
K 3150

$^{\$}199$

# Audio/Visual Kits

THE BRICK
Add-On Stereo/Mono Power Amplifier
volume
power
mono

## A N 15W Brick Amp Kit

This great compact unit delivers 15W per channel in stereo, allowing you to add extra channels to your home theatre setup, eg rear or centre speakers. It can easily be hidden due to it's size, and accepts line output from any source.

Specifications:

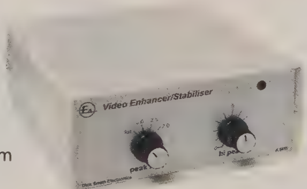
Power Output: One channel driven: 15W RMS into 8 Ohms, 20W RMS into 4 Ohms. Both channels driven: 11W RMS into 8 Ohms, 13W RMS into 4 Ohms. Bridged mono mode: 28W into 8 Ohms. Distortion: THD: 0.04% at 10W into 8 Ohms. Frequency response: -1dB at 18Hz and 37kHz, -2dB at 12Hz and 57kHz. Channel Crosstalk: -43dB at 10W RMS output, 1kHz, -42dB at 10W RMS output, 100Hz and 10kHz. Signal/Noise Ratio: -71dB unweighed rel 10W at 8 Ohms, (-85dB with 80kHz LP filter)

K 5609 **$134**

## P Sub-bass Processor Kit

Get the most out of your low-bass speaker system, subwoofer or home theatre. Designed to both correct and enhance the low end response of sub-woofer style speakers and can easily be installed in an existing amp, powered subwoofer or as a free standing unit. It includes a bypassable filter, variable gain (+/-12dB) input stage, and can be driven from a speaker or line level input signals. Voltage source required: +/- 15V DC.

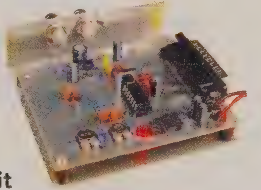
K 5403 **$35.20**



## P Video Enhancer and Stabiliser Kit

Improves image quality from poor-quality video tapes. Reduces image degradation when making copies of your own family video recordings. Includes circuitry which offers more stable viewing of video signals by stripping out "piggyback" information. Enhancement circuitry allows fully adjustable boosting between zero and approx 8dB at any of the three selectable frequencies. Power source required: 240V AC. Supplied with all specified components, PCB, plastic instrument case and pre-punched, screened front panel.

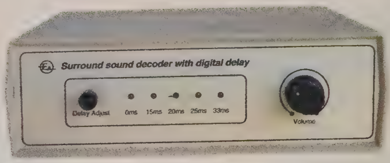
K 5411 **$98**



## P Video Title Kit

Here is a project that is able to overlay text material onto existing video signals. The kits operation is controlled from a PC via the printer port. Supplied with demo software (use DOS), all components, PCB and instructions. Suited for 286/386/486 computers. Power supply: 12 volts DC.

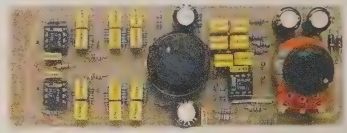
K 5417 **$49.95**



## A Surround Sound Kit

Build your own analogue surround sound decoder and save yourself a packet. While a time delay is often used to create an echo effect, it can also add a feeling of spaciousness to a recording. The delay circuit is based on a common digital delay IC. A single front panel allows you to select rear channel delay of 0ms, 15ms, 20ms or 33ms. The main use for the delay is to improve the direction and clarity of the front channels. Use this kit to add to the surround sound effect in your home! Kit contains PCB, case, front/back panels and all components.

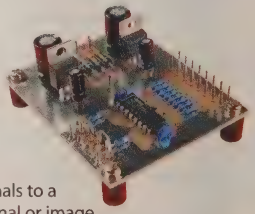
K 5409 **$109**



## L Active Crossover Kit

Allows you to integrate a subwoofer with an existing speaker system. Offers both low-pass and high-pass outputs which have matching roll-off and phase characteristics. Input and output impedances: 47k and 100 ohms respectively. Power source required: 12V AC (use M2851 transformer). Supplied with component, PCB and hardware such as pots, knobs and sockets. Case optional (use H2508). PCB size: 50mm x 140mm.

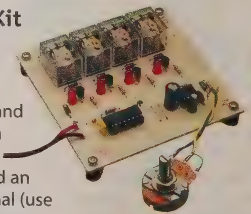
K 5404 **$48.20**



## L Video Distribution Amplifier Kit

Distributes composite video, video signals or frequency reference signals to a number of locations. No loss of signal or image when connecting up to four monitors from a single source. Very wide band-width useful for driving multiple computer monitors from a single video graphics adaptor. Great for labs, schools and colleges. Supplied with components and PCB.

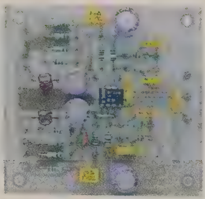
K 5413 **$58.70**



## L 4 Channel A/V Sequencer Kit

Great for DIY surveillance systems! A simple to construct audio/video sequencer which enables you to continuously sequence the video and audio from up to four cameras to a standard monitor. Adjustable sequencing rate with facility to add an optional pause switch. Case optional (use H2852 Zippy Box). Power supply required 12V DC.

K 5419 **$34.90**



L

### Universal Pre-Amp Kit

This low noise stereo pre-amplifier is easy to build and ideal for use with magnetic cartridges, cassette decks or microphone inputs. Uses a single dual op-amp IC (LM-833). Power source required: 15-0-15V DC. Supplied with components and PCB. Case optional (use H2851). PCB size: 78mm x 80mm.
K 5402

$21.80

L

### Champ Pre-Amp Kit

Designed to work with most small amplifier modules including our mini amplifier (K-5604). Simple to construct using two common transistors (BC548/BC558). Up to 40dB gain. Provision available on PCB for an (optional) electret mic insert. Power source required: 9V battery. Supplied with components and PCB. Case optional (use H2855). PCB size: 36mm x 46mm.
K 5608

$15.90

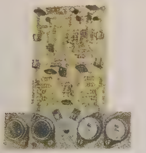
MINI STEREO AMPLIFIER
LEFT OUTPUT
RIGHT OUTPUT
9V DC
OFF
ON
POWER
STEREO INPUT
MIN
VOLUME
MAX
DICK SMITH ELECTRONICS

L

### Mini Stereo Amplifier Kit

This inexpensive circuit can give you the flexibility of a home hi-fi on your desk. Uses your personal stereo as the 'brains' of the operation. Utilises a tiny 8-pin DIL device which contains 2 amplifiers. Output power: 1watt into 8 ohms (@ 9 volts). Power source required: 1.8-12V DC. Supplied with components, PCB, hardware, front panel label and case.
K 5008

$36.50



P

### 100W Amp Module Kit

You can use two of these for stereo, giving you a massive 200W output. Power output: 100Watts x 4ohms, power source required: +/- 40 Volts (use K 3438), supplied with all components, PCB, fuses and transistor mounting bracket, case optional (use H 2481)
K 3442

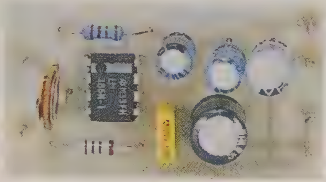
$59.40

P

### Mixer Pre-Amp Kit

4 channel mixer preamp. Has separate bass, treble, mid-range input and output level control. Frequency Response: 18Hz-35kHz (+/-3dB). Power source required: +/- 15V DC. Supplied with PCB, components and hardware. Case optional (use H2481).
K 5400

$64.20



L

### 0.5W Amplifier Module Kit

This tiny amp is about the size of a 9V battery. Produces 0.5W into 8ohms. Perfect for any of those projects that need an efficient, inexpensive amp that takes up minimal space. Power source required: 9 volt battery. Case optional (use H 2855).
K 5604

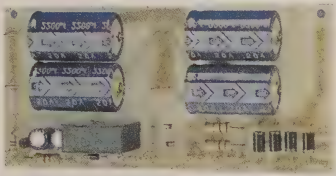
$8.60

L

### 50W Amplifier Module Kit

Single-chip power module using the LM3876 power amplifier IC. Extremely low distortion. Power source required: +/- 37.5V DC. Supplied with components, PCB and hardware such as fuse and heatsink. Case optional (use H2481). PCB size: 59mm x 84mm.
K 5606

$58.60



L

### Amplifier Power Supply Module Kit

Suits 100W amp. This power supply will run one 100W module (K3442). Circuit includes speaker de-thump circuitry. Output voltage: +/- 40V (40-0-40).+/- 15V supply rail also available which can be used to power a pre-amp. Power source required: 28-0-28V AC @ 2A use M0144 tranformer). Supplied with components, PCB and relay for de-thump circuitry. Case optional (use H2481). PCB size: 76mm x 159mm.
K 3438

$42

# Sound Kits

L

## Vader Voice Kit

Dick Smith Electronics
VADER VOICE
ON
OFF

Disguise your voice to sound like Darth Vader from Star Wars. Housed in a small zippy box, with controls to adjust type of sound effect rate and volume output level from the speaker. Microphone insert is mounted remotely to main unit. Kits are supplied compete with all components , PCB, hardware case speaker front panel label.
K 3511

$37.40

A

## LP Doctor Kit

Start enjoying your records again by playing them through the LP Doctor! The LP Doctor can be teamed with any turntable having a magnetic cartridge so you can listen to your LPs without clicks and pops.
K 5425

$254

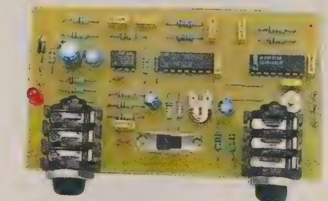
AEM 6510
PUG - NOSE
GUITAR PRACTICE AMP
1
IN
2
VOL
TOP CUT
DIST

L

## Guitar Practice Amp Module Kit

Ideal for practicing your favourite riffs at home. Output power: 4 watts into 4 ohms. Power source required: 12V DC (nominal). Supplied with components, PCB, hardware such as pots, knobs, heatsink and front panel label. Case optional: cabinet design details shown in the instructions. PCB size: 48mm x 62mm.
K 3548

$44.10



L

## Wah-Wah Guitar FX Kit

Popular guitar effect controlled by a foot pedal (not included). Resulting sound produces suddenly increasing/decreasing volume. Includes PCB stakes, PCB components and PCB mounted 6.35mm sockets.
K 5620

$38.90

L

## Siren Generator Kit

Just a flick of a switch will sound either police, ambulance or fire engine sirens. With just a slight alteration, you can also get it to emit the sound of a machine-gun firing. Power source required: 1.5V battery (AA cell). Supplied with components, PCB, battery holder and speaker. Case optional (use H2853). PCB size: 32mm x 78mm.
K 5514

$15.40

P

## Midi Breakout Box Kit

MIDI
BREAKOUT
BOX
MIDI IN
MIDI THRU
MIDI OUT
MIDI OUT

Interfaces the keyboard to your sound card and is a low cost alternative to "off-the-shelf" interfaces. Power source required: 5V DC. Supplied with components, PCB, hardware, case and pre-punched, screened front panel.
K 3604

$59.40

L

## Guitar Compressor Kit

This simple project can be used for a number of audio effects, including compression, automatic level control, sustain and limiting. It can be used with a guitar, microphone or any other low-level signal source.

Features: • Low noise • Low distortion • Adjustable compression ratio • Adjustable limiting ratio • Adjustable minimum compression level • Adjustable gain • Variable output level • Signal bypass switching • Requires 12V DC.
K 5621

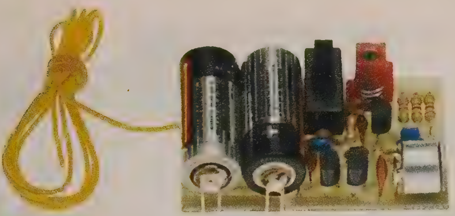
$38.40

P

## Guitar Tremolo Kit

Add another popular effect to your music-making with this easy-to-build Tremolo unit. Features low distortion and extremely low noise, thus providing a very clean sound. The unit is housed in a compact case with input and output jack. The Tremolo rate is indicated by a LED which flashes in sympathy with volume modulation. Powered by a 12 Volt DC plugpack (not included). Supplied with PCBs, all components and hardware, case, and pre-punched, silk-screened front panel label.
K 5622

$53

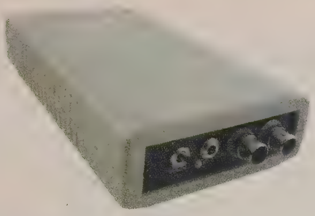


**L**

## FM Wireless Microphone Kit

Small enough to fit inside a match box. Incredibly stable and sensitive circuitry. Use it to monitor your baby, a distant telephone, or as a one way intercom. Signals are transmitted at around 90MHz. For a receiver, simply use your FM radio. Power source required: 3 to 9 volts DC. Supplied with PCB, components and batteries (2 x 'N' cells - S7241). Case optional (use H2855). PCB size: 31mm x 50mm.
K 5006

**$26.60**



**P**

## Stereo Transmitter Kit

Want to listen to your own selection of music through your personal stereo FM radio? Using the FM MiniMitter, you can broadcast from your CD player or from any other source so that it can be picked up within a 35-metre radius.
K 5007

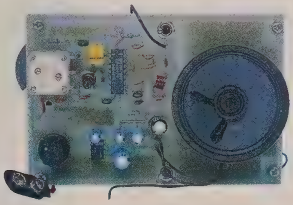
**$68.20**

**L**

## Mini Vox Kit

Build your own tiny voice-activated relay! Great where hands-free operation is required. Power source required: 12V DC. Supplied with components and PCB. Case optional (use H2855). PCB size: 43mm x 46mm.
K 3038

**$22.60**



**L**

## FM Radio Kit

This simple FM Radio Receiver uses only two low-cost integrated circuits. Power source required: 9V battery. Supplied with components, PCB and speaker. Case optional (use H 2852). PCB size: 86mm x 128mm.
K 5014

**$43.40**

## TEST EQUIPMENT KITS

BENCHTOP POWER SUPPLY

**P**

## Benchtop Power Supply Kit

Practical and versatile design. Variable output: 2.5 to 18 volts. Output current: 1 amp at 18 volts (550mA Continuous). Variable output 2.5 to 18 volts. Switchable current limiting (30mA and 1.2 amps). Selectable voltage and current metering. With output load switch
K 3202

**$112**

40V/3A LAB POWER SUPPLY

**P**

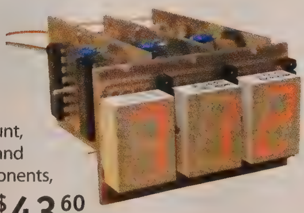
## Lab Power Supply Kit

Dual rail benchtop supply. Variable output: 0 to 40 volts (20V-0-20V). Output current: up to 3.5 amps. Current limit: approx. 30mA to 3.5A adjustable (in two ranges). Features both voltage and current meters.
K 3206

**$223**

**P**

## Counter Module 3 Digit Display Kit



Expandable to as many digits as you like. Control inputs include lamp test, blanking, output latching, up/down count, input gating, reset and clock and displays. Supplied with components, PCB and displays.
K 3452

**$43.60**

**L**

## Short Turns Tester Kit

LOPT/FBT Tester

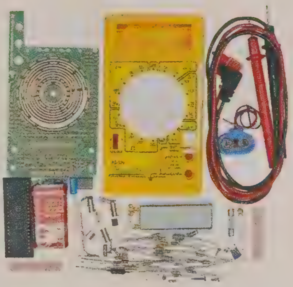
Tester for line output or 'flyback' transformers and HF wound components. Aids in the servicing of TV recievers, video monitors and computer power supplies. Identifies horizontal output stage faults. Includes all components, PCB, case, pre-punched and screened front panel. Power source required: 4 x 'AA' batteries.
K 7205

**$48.20**

# *Test Equipment Kits*

P

## Digital Multimeter Kit



3.5 Digit display. Supplied with all components, hardware, PCB, multimeter plastic case, LCD display, 9V battery and test leads. Measures voltage AC/DC, DC current to 10 amps, resistance 200R to 2000K. Diode, continuity and transistor test.

K 1044 $\$34^{80}$

L

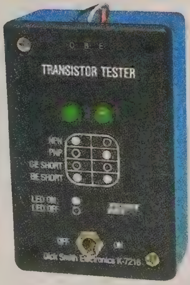
## Capacitance Meter Adaptor Kit

Turns your digital or analogue multimeter into a direct-reading capacitance meter. Plugs directly into your meter. Capacitance range from 3.3pF to 2000uF, in two ranges. Power source required: 9V battery. Supplied with components, PCB and hardware such as banana plugs, switch and battery snap. Case optional (use H2853). PCB size 25mm x 66mm.

K 3410 $\$32^{40}$

L

## Incircuit Transistor Tester Kit



Handy for indicating whether or not transistors are working properly. Works for NPN and PNP types. Power source required: 9V battery. Tests both small signal and power transistors. Indication given by 2 LEDs. Can be used to test transistors that are already in the circuit. Supplied with all components, PCB, hardware (including test clips), case and pre-punched, screened front panel.

K 7218 $\$29^{70}$

L

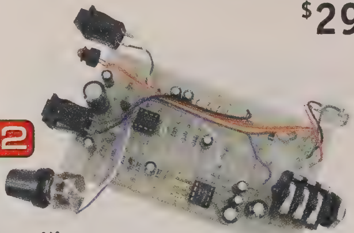
## ESR & Low OHM Meter Kit

ESR and LOW OHMS METER

Measures the equivalent series resistance (ESR) in a capacitor which is often difficult to check with capacitance meters. Also great for measuring very low values of resistance. Supplied with all components, hardware, PCB, case, display window and pre-punched, screened front panel. Power source required: 9V battery (not included).

K 7204 $\$83^{70}$

new for 2002



L

## Noise Generator Kit

This personal noise generator produces pink or white noise and can be used to drive headphones or an external speaker to block out unwanted noise. It has been specifically designrd for Tinnitus sufferers but can be used by anyone who wants to block out unwanted sounds. Kit supplied with PCB and components only. 9 volt battery not included.

K 7211 $\$29^{60}$

L

## Sine/Square Wave Oscillator Kit

SINE/SQUARE WAVE GENERATOR

This affordable and accurate sine/square wave signal generator covers the frequency range from 2Hz to 20kHz and is suitable for a wide range of audio applications. Kit is supplied with case, silk-screened front panel, PCBs, and all electronic components. Features constant output amplitude as you sweep over each range. Sine wave distortion is less than 0.1%. Can be powered by two 9 Volt batteries (not included) or a 9-Volt DC plugpack (not included).

K 7338 $\$68^{40}$

L

## Pocket Sampler Kit

2V
SAMPLE
20V
CALIBRATE
Pocket Sampler
Dick Smith Electronics K-7345

Provides an interface between your computer and the outside world. Connects to your computer via the parallel port. 8-bit resolution. Sampling time scale ranging from once every hour, down to one sample every 100us (10kHz). Power source required: 8-16V DC. Supplied with components, case, hardware, front panel label and software on a 3.5" disk.

K 7345 $\$44^{60}$

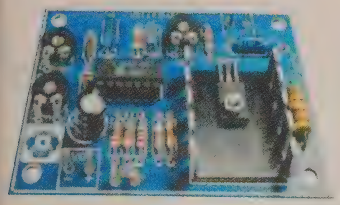
Soundcard preamp
CH1
CH2

L

## Soundcard Pre Amp Kit

Convert your sound card into an oscilloscope or waveform generator. Includes software to get you started. With all the components, hardware, PCB, case, pre-punched and screened front panel. Probe not included.

K 7347 $\$49^{95}$

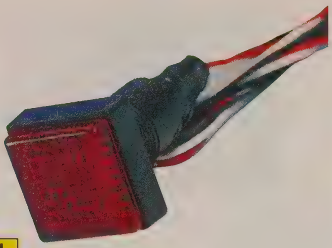


**P**

### velleman Kojak Siren Kit

Create or imitate sirens of all kinds by adjusting three trimmers. Powerful sound with an additional 2W amplifier on the PCB. Power supply: 8-14 V DC.

K 1300 **$25.20**

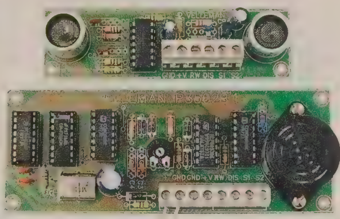


**L**

### Flashing Deterrent Light Kit

Red flashing light activated by the ignition and automatically turns off with ignition. Supplied with components, mounting hardware, deluxe bezel case and 12 volt globe. Needs a 12V battery.

K 4200 **$16**

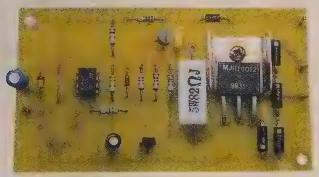


**A**

### velleman Kit - Parking Radar

If you have problems parking then this kit with ultrasonic sound waves is for you. It "measures" a distance between the car and other obstacles and a signal is generated when it crosses the pre-set distance. Supply voltage 10-15 VDC/16mA.

K 1303 **$69**

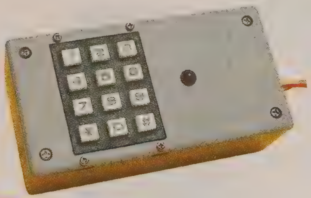


**L**

### Engine Immobiliser Kit

Circuit stalls engine when activated. Connects directly to ignition system. Kit can be assembled and used independently. Can also be interfaced with control module keypad. Power supply 12V DC. Includes all components, case and PCB.

K 4303 **$37.40**



**L**

### Keypad Immobiliser Kit

Interface with MKII immobiliser kit. Choose your own 4-digit code for arming/disarming. No hidden switches required or keys to carry. Can be hidden or mounted for visible deterrence. Power supply: 12V DC. Supplied with hardware, keypad module, PCB and all components.

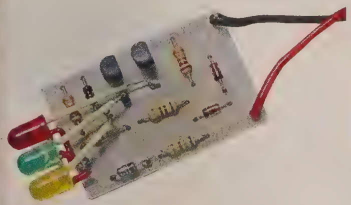
K 4304 **$39.20**

**L**

### Screecher Car Alarm Kit

Compact and easy to install, this kit utilizes a high output piezo siren to blast an intruder inside your car. Features entry and exit delays and a flashing warning LED. Includes all components, piezo siren, case and PCB. Circuit includes transition sensitive triggers. Power supply: 12V DC.

K 4301 **$39.40**

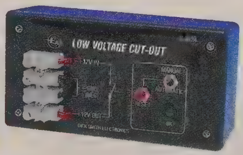


**L**

### LED Voltmeter Kit

Three LEDs show if battery voltage is low, correct or high. Supplied with a small PCB, status LEDs and components. Suitable for 12V battery systems. PCB size: 25mm x 39mm.

K 4205 **$13.80**

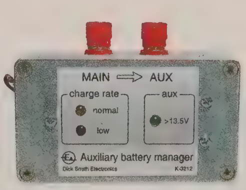


**L**

### Low-Voltage Cut-Out Kit

Ideal for car or boat when powering external accessories. Disconnects the load from the battery once the voltage drops to a predetermined level. Adjustable drop-out voltage: 10.9 to 11.9 volts (nominal). Can be set to automatically restore power to the load when the battery returns to normal condition. Power source required: 12V DC. Supplied with components, hardware, PCB, case and front panel label.

K 3124 **$35.80**



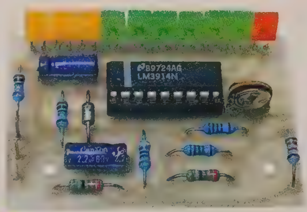
**P**

### Smart Dual 12V Battery Controller Kit

Automatically switches your auxiliary battery into the main electrical system for charging once the engine is started. Disengages your main battery when the engine is stopped avoiding excess drain when secondary items are being operated. Switches between primary and auxiliary battery automatically. Supplied with components, hardware, PCB, sealed diecast box and front panel label.

K 3212 **$56.80**

# Automotive Kits

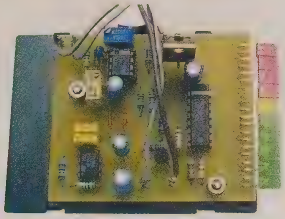


**L**

### Car Battery Monitor Kit

Simple and functional kit to monitor your car battery. The state of charge is shown by an LED bar graph. Levels range from under-charged to optimum charge levels to over-charged. Supplied in short form with PCB and components.

K 4611 **$15.60**

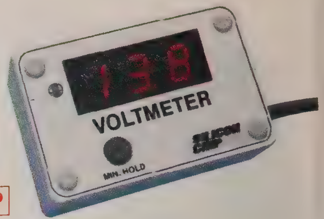


**L**

### Car Ammeter Monitor Kit

Keep an eye on the charging and discharge of your car's battery with this LED ammeter. It has 10 rectangular LEDs and will indicate charge and discharge currents up to 25 amps. No alterations need to be made to your cars wiring as it monitors the voltage drop across the negative strap to the battery.

K 4612 **$28.70**

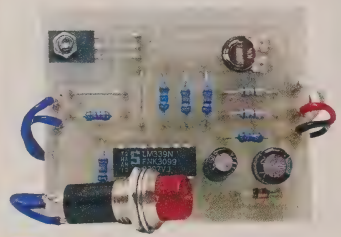


**P**

### Digital Voltmeter Kit

Keep tabs on the condition of your car's battery and charging system. Features a three-digit LED display with automatic dimming. Compact case with 12 Volt or 24 Volt operation. Supplied with case, pre-punched and silk-screened front panel, PCBs and all necessary components.

K 4209 **$86**



**L**

### Low Fuel Indicator Kit

Lights a 12V warning lamp when the fuel drops below a pre-determined level. Supplied with PCB, zippy box, 12V bezel and all necessary components. Requires a 12V battery.

K 4210 **$22.70**

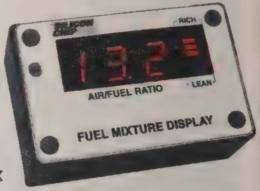
Dick Smith Electronics
MiniStrobe
RPM
K-3160

**L**

### Mini Strobe Kit

Can be used as an rpm indicator for electric motors, etc. Range adjustable from 400 to 4000 rpm. Power source required: 9V battery. Supplied with components, hardware, PCB case and front panel label.

K 3160 **$32.30**

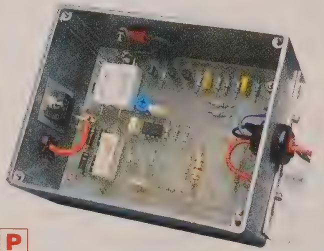


**P**

### Fuel Mix Display Kit

Monitor the air-fuel ratio of your car's engine in real-time with this handy Fuel Mixture Display. Features a digital readout plus a bargraph and is easy to install in a vehicle. Suites vehicles with Zirconia EGO probes. Indicates air fuel ratios from 11.8 to 20.6 for petrol. Indicates air fuel ratios from 12.7 to 21.5 for propane/LPG. Fully lean and fully rich air-fuel indication. Automatic display dimming. 0-1V display for setting up adjustments. Kit supplied with case, front panel, PCBs, and all necessary components.

K 4213 **$98.60**

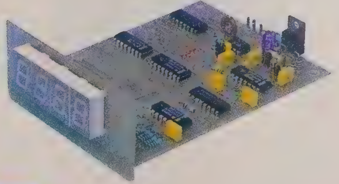


**P**

### High Energy Ignition Kit

Reduces the need for tune ups in cars with points. Provides connection terminals for programmable ignition. Includes components, hardware, PCB and diecast box. Power source: 12V DC.

K 3303 **$73.40**

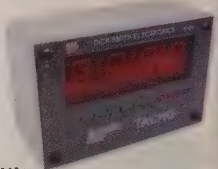


**L**

### Digital Tachometer Kit

This 4-digit display tachometer works on all types of ignitions, from Kettering to Hall effect systems on 4, 6 & 8 cylinder cars. Supplied with components, PCB's and LED displays. Power source required: 12V battery (not included).

K 3241 **$46.80**



**P**

### Digital Tachometer Kit

With a four-digit display, this digital tachometer works with four-stroke engines with up to 12 cylinders and two-stroke engines with up to six cylinders. Features display dimming during low light conditions and 100 rpm display resolution. Rpm sensing comes directly from ignition coil or via a low voltage signal from the engine management computer. Kit supplied with PCB, compact case, and all necessary components.

K 4211 **$95.20**

## CRIMP CONNECTORS

Quikcrimp

### Connector Packs

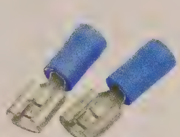
A thousand and one uses around the home, workshop, garage, etc. Quick crimp makes fixing and joining electrical cables fast, easy and effective.

**Matching Cable Size to Connectors**

The colour of the insulation on the terminals relates to the cable size that they are suited to. Red terminals suit cables from approximately 0.4mm² to 1.0mm². Blue terminals suit cables from approximately 1.1mm² to 2.6mm². Yellow terminals suit cables from approximately 2.5mm² to 6.5mm².

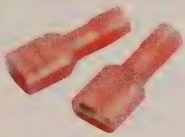
### Female Receptacle

| Size | Colour | Qty | Cat No | Price |
|---|---|---|---|---|
| 2.8mm | Red | Pkt 10 | H 3043 | $5.50 |
| 4.8mm | Red | Pkt 10 | H 3044 | $5.50 |
| 4.8mm | Red | Pkt 50 | H 3090 | $14.30 |
| 6.3mm | Red | Pkt 10 | H 3022 | $5.50 |
| 6.3mm | Red | Pkt 50 | H 3092 | $14.30 |
| 6.3mm | Blue | Pkt 10 | H 3040 | $5.50 |
| 6.3mm | Blue | Pkt 50 | H 3093 | $14.30 |



### Insulated Female Receptacle

| Size | Colour | Qty | Cat No | Price |
|---|---|---|---|---|
| 6.3mm | Red | Pkt 10 | H 3046 | $5.50 |
| 6.3mm | Red | Pkt 50 | H 3094 | $14.30 |
| 6.3mm | Blue | Pkt 10 | H 3048 | $5.50 |



### Ring Terminal

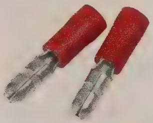
| Size | Colour | Qty | Cat No | Price |
|---|---|---|---|---|
| 3mm | Red | Pkt 10 | H 3010 | $5.50 |
| 4mm | Red | Pkt 10 | H 3011 | $5.50 |
| 5mm | Red | Pkt 10 | H 3012 | $5.50 |
| 5mm | Blue | Pkt 10 | H 3031 | $5.50 |
| 6mm | Blue | Pkt 10 | H 3032 | $5.50 |
| 8mm | Blue | Pkt 10 | H 3033 | $5.50 |
| 6mm | Yellow | Pkt 10 | H 3061 | $5.50 |
| 8mm | Yellow | Pkt 10 | H 3062 | $5.50 |
| 10mm | Yellow | Pkt 10 | H 3063 | $5.50 |

### Spade/Fork Terminal

| Size | Colour | Qty | Cat No | Price |
|---|---|---|---|---|
| 3mm | Red | Pkt 10 | H 3015 | $5.50 |
| 4mm | Blue | Pkt 10 | H 3036 | $5.50 |
| 5mm | Yellow | Pkt 10 | H 3065 | $5.50 |

### Bullet Male Connector

| Size | Colour | Qty | Cat No | Price |
|---|---|---|---|---|
| 4mm | Red | Pkt 10 | H 3026 | $5.50 |
| 4mm | Red | Pkt 50 | H 3087 | $14.30 |
| 5mm | Blue | Pkt 10 | H 3050 | $5.50 |



### Bullet Female Connector

| Size | Colour | Qty | Cat No | Price |
|---|---|---|---|---|
| 4mm | Red | Pkt 10 | H 3027 | $5.50 |
| 4mm | Red | Pkt 50 | H 3088 | $14.30 |
| 5mm | Blue | Pkt 10 | H 3055 | $5.50 |

### Male Tab Connector

| Size | Colour | Qty | Cat No | Price |
|---|---|---|---|---|
| 6.3mm | Red | Pkt 10 | H 3024 | $5.50 |
| 6.3mm | Blue | Pkt 10 | H 3042 | $5.50 |

### Assorted Connectors

| Size | Colour | Qty | Cat No | Price | Type |
|---|---|---|---|---|---|
| 6.3mm | Blue | Pkt 10 | H 3045 | $5.50 | Piggyback |
| 6.3mm | Uninsulated | Pkt 10 | H 3080 | $5.50 | Male/Female/Male |

### Straight Wire Joiner

| Colour | Qty | Cat No | Price |
|---|---|---|---|
| Red | Pkt 10 | H 3020 | $5.50 |
| Blue | Pkt 10 | H 3038 | $5.50 |

### Assorted Crimp Lug Pack

30 crimp lugs of various types and sizes including joiners. All with insulation attached.

H 1996

$9.70

### Professional Lug Crimping Tool

This robust lug crimper has a ratchet drive for accurate control, variable pressure adjustment and double jaws for single action crimping. Suits a wide variety of common lugs.

T 3535

$66

### Narva 320pc Assorted Crimp Set

320 pieces of assorted terminals including blade, eye, bullet, butt splice, and wire tap.

H 5070

$54

## SOLDER TYPE CONNECTORS

### Ring/Eye Terminal

Limited Stock

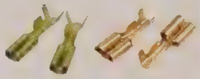
| Size | Colour | Qty | Cat No | Price |
|---|---|---|---|---|
| 5mm | Red | Pkt 12 | H 5032 | $4.30 |

### Male Spade

| Size | Qty | Cat No | Price |
|---|---|---|---|
| 2.8mm | Pkt 15 | H 5038 | $4.30 |
| 6.3mm | Pkt 10 | H 5016 | $4.30 |

### Female Spade

| Size | Qty | Cat No | Price |
|---|---|---|---|
| 2.8mm | Pkt 15 | H 5036 | $4.30 |
| 6.3mm | Pkt 10 | H 5012 | $4.30 |



### Bullet Terminal

| Description | Qty | Cat No | Price |
|---|---|---|---|
| Male | Pkt 10 | H 5006 | $4.30 |
| Female | Pkt 10 | H 5008 | $4.30 |

### Terminal Covers

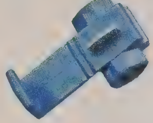
| Description | Qty | Cat No | Price |
|---|---|---|---|
| 6.3mm Plastic | Pkt 10 | H 5022 | $3.70 |
| Male Bullet | Pkt 10 | H 5007 | $3.20 |
| Female Bullet | Pkt 10 | H 5009 | $3.20 |

# Cable Connectors, Clamps & Grommets

## CONNECTORS

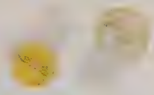
### Wire Tab Joiner

Joins two wires easily, just insert and clamp.
0.5 - 2.5mm Pack of 10 H 1780 $4.95



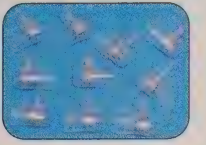
### Telephone Splice Connector

The simple way to join 2 wires. Pack of 10.
H 5658 $4.80



### Clear Cable Connectors

The quick and easy way to join or terminate cable. Suitable for 240V. Rated 380V @ 25A. Pack of 10.
H 6715 $5.45



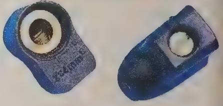
### Crimp-On Connectors

In packs of 10. Sectional areas of 2mm² and 8mm² respectively for small and large.

| | | |
|---|---|---|
| **Small** | H 1774 | **$2.50** |
| **Large** | H 1777 | **$3.95** |

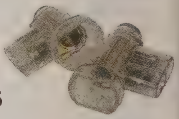
### BP Connectors

The quick and easy way to join or terminate wire. Suitable for 240 volts. Simply wind the wire, slip it in and tighten the screw. Pack of 10.
H 6710 $5.45



### Insulated Double Screw Connectors

Used by electricians for general connections, to connect light fittings, junction boxes etc. Rated at 240 Volts 32A. Soft clear PVC plastic with brass connections. Pack of 10.
H 6716 $7.95



## CABLE CLAMPS

### Cable Clamps

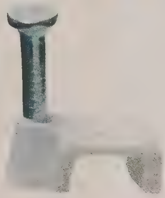
Heavy duty nylon cable clamps.

| Cab Diam. | Cat No | Qty | Price/pk |
|---|---|---|---|
| 5mm | H 1964 | 5pk | **$3.10** |
| 6mm | H 1965 | 5pk | **$3.40** |
| 8mm | H 1966 | 5pk | **$3.70** |
| 13mm | H 1963 | 5pk | **$4.20** |

### Quick Fix Cable Clamps

Designed to hold mains cable firmly in timber, masonry etc. Pack of 20.

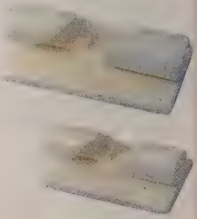
| Size | Cable Type | Colour | Cat No | Price |
|---|---|---|---|---|
| 4mm | Round | White | W 4050 | **$3.50** |
| 5mm | Figure 8 | White | W 4020 | **$3.50** |
| 6mm | Round | White | W 4051 | **$3.50** |
| 6mm | Round | Black | W 4052 | **$3.50** |
| 8mm | Round | White | W 4053 | **$3.50** |



### Stick-On Cable Clips

Adhesive-backed plastic clips to hold your cable in place. Ideal for speaker wires, Christmas lights and more!

| | | |
|---|---|---|
| **Large White**<br>Pack of 10 | H 1904 | $7.95 |
| **Small White**<br>Pack of 20 | H 1906 | $11.95 |



### Cable Staples

Makes fixing low voltage cables to timber easy! They simply straddle the cable and are hammered into place. A plastic cover under each staple helps prevent damage to the cable. Pack of 100.
W 4025 $6.25

## GROMMETS

### Nylon Cable Glands

They're water-tight and screw together to give coax (or any other sort of cable that will fit) perfect protection! Petrol and oil resistant, totally submersible.

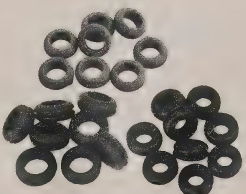
| | | |
|---|---|---|
| Qty. 2 (10-14mm Cable) | H 1899 | **$6.25pk** |
| Qty. 2 (4-6mm Cable) | H 1930 | **$5.95pk** |
| Qty. 2 (5-10mm Cable) | H 1932 | **$5.95pk** |

### Cord Grommets

Heavy duty grommets which are essential for the prevention of fraying and shorts where a cable passes through a chassis, etc.

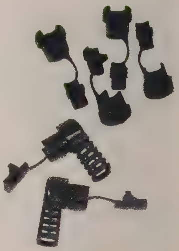
| Hole Size | Bore Size | Qty | Cat No. | Price per pk |
|---|---|---|---|---|
| 8mm | 5.5mm | 10 | H 1712* | **$3.70** |
| 12mm | 6mm | 10 | H 1716 | **$4.10** |
| 16mm | 9mm | 8 | H 1719 | **$4.70** |

***Limited Stock**



### Cord Clamp Grommets

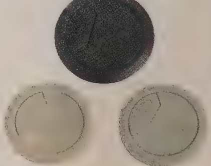
A self-locking grommet that maintains a grip on the cable without separate clamps. In pack of 4. Suits 3-core light-duty mains flex or equivalent size cable.
Hole size 12-16mm.
H 1724
Figure 8 Wire, Right Angle
H 1726 $2.95pk



### Desk Grommets

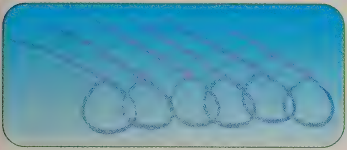
Tidy computer cords on desks. 60mm diameter.

| | | |
|---|---|---|
| Black | H 1730 | $8.70 |
| Almond | H 1731 | $8.70 |
| Grey | H 1732 | $8.70 |



## CABLE TIES

Tough and flexible, with non-slip locking action to ensure the tie won't slacken or fall off. All sizes are in handy packs of 100 and 25. Indoor ties are a neutral colour, outdoor ties are black.



### Indoor Use - Colour Neutral

| Size | Pack Qty | Cat No. | Price/pk |
|---|---|---|---|
| 102 x 2.5mm | 25 | H 1950 | $2.95 |
| 194 x 2.5mm | 25 | H 1951 | $3.50 |
| 292 x 3.5mm | 25 | H 1952 | $5.95 |
| 370 x 4.8mm | 25 | H 1953 | $7.30 |

### Outdoor Use - Colour Black

| Size | Pack Qty | Cat No. | Price/pk |
|---|---|---|---|
| 102 x 2.4mm | 25 | H 1955 | $3.20 |
| 194 x 2.4mm | 25 | H 1956 | $4.20 |
| 292 x 3.6mm | 25 | H 1957 | $6.90 |
| 370 x 4.8mm | 25 | H 1958 | $7.95 |

### 100 Piece Packs

**Indoor/Outdoor Cable Ties**

| Size | Pack Qty | Cat No. | Price/pk |
|---|---|---|---|
| 102 x 2.4mm Clear | 100 | H 1974 | $7.10 |
| 194 x 2.4mm Clear | 100 | H 1976 | $13.95 |
| 102 x 2.4mm Black | 100 | H 1980 | $9.95 |
| 194 x 2.4mm Black | 100 | H 1982 | $14.60 |

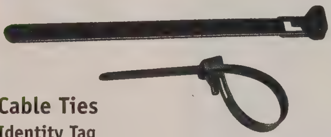
### Mixed Coloured Cable Ties

| | | | |
|---|---|---|---|
| 96 x 2.5mm (10 cols x 10 pcs) | Pack 100 | H 1959 | $12.90 |
| 190 x 4.8mm (10 cols x 10 pcs) | Pack 100 | H 1961 | $19.95 |

### Releasable Cable Ties

Cable ties that can easily be released and re-tied. They're suitable for indoor or outdoor use.

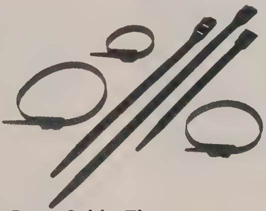
| Size | Pack Qty | Cat No. | Price/pk |
|---|---|---|---|
| 100 x 4.5mm Clear | 100 | H 1995 | $10.40 |
| 194 x 4.5mm Clear | 100 | H 1997 | $16.95 |
| 120mm Clear Loop | 100 | H 1929 | $6.25 |
| 125 x 7.6mm Black | 100 | H 1977 | $2.45 |



### Cable Ties

**Identity Tag**

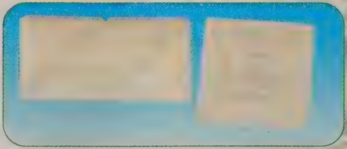
(tie length 102mm) Pack 25 H 1973 $3.95



### Heavy Duty Cable Ties

Tough and reliable these cable ties have a unique double lock mechanism for extra hold and strength.

300mm x 4.8mm Assorted cable tie pack. Black Pack 30 H 2023 $9.95



### Cable Tie Mounts

Self adhesive mounts with slot for securing cable ties to instrument cases etc.

| | | | |
|---|---|---|---|
| 19x19mm | Pack 10 | H 1989 | $3.95 |
| 19x19mm | Pack 50 | H 1991 | $12.50 |
| 25x25mm | Pack 50 | H 1993 | $14.50 |

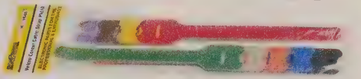
### Wonder Colour Cable Strap

A versatile pack of 10 reusable cable straps, 15x165mm. Consists of 5 assorted colours (Green, Pink, Red, Yellow, Purple) containing 2 straps per colour.
H 1949 $10.40

### Hook and Loop Cable Straps

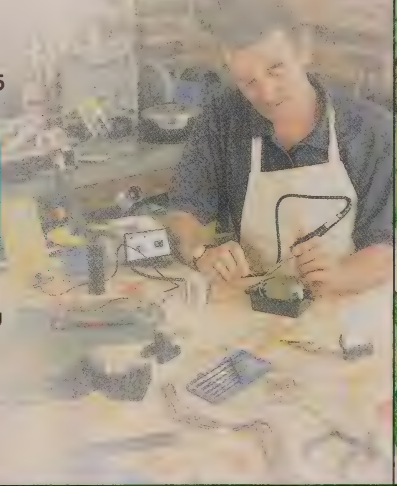
Reusable cable ties that you can open or close to add or remove cables. Packs of 10.

| | | |
|---|---|---|
| 25 x 200mm | H 1946 | $14.95 |
| 25 x 300 mm | H 1947 | $18.20 |



### Hook and Loop Colour Cable Strap

A handy pack of 10 reusable Hook and Loop cable straps, 25x200mm. Comes in an assortment of colours: Blue, Grey, Purple, Green, Red, Black, White, Orange, Brown and Yellow.
H 1948 $15.60



# *Screw, Nuts, Bolts & Washers*

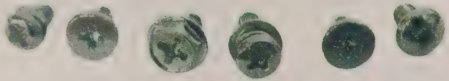
## SCREWS

### Pan Head Screws

Pack of 10 screws suitable for most switches with threaded mounting holes. Each 2mm x 5mm.
H 1674

$3.20

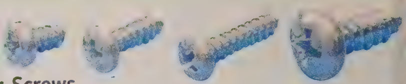
## COMPUTER SCREWS



### Mixed Computer Screw Pack

10pcs x 6 types of the most commonly used computer screws. Pack of 60.
H 1675

$5.45



### Self-Tapping Screws

Zinc-plated self-tapping screws. In handy packs.

| Description | Qty | Cat No | Price |
|---|---|---|---|
| No. 4 x 6mm | 25 | H 1611 | **$2.25** |
| No. 4 x 9mm | 25 | H 1634 | **$2.40** |
| No. 4 x 12mm | 25 | H 1612 | **$2.80** |
| No. 8 x 12mm | 25 | H 1632 | **$2.90** |

### Zinc Plated Self-Tapping Screws

60 piece pack of M4.0 self tapping screws.
H 1630

$6.80

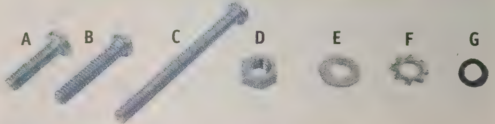
## M2 NUTS, BOLTS & WASHERS

### M2 Mixed Pack 200 pieces

Zinc-plated mixed pack includes 10 x 6, 9, 12, 25mm bolts, 40 nuts, 40 flat, 40 shakeproof and 40 spring washers.
H 1685

$12.80 pk

## M2.5 NUTS, BOLTS & WASHERS



### M2.5 Screws/Nuts/ Washers

Zinc-plated round head. Size 2.5mm.

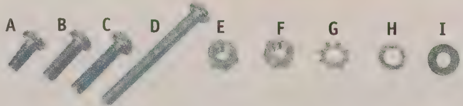
| Description | Pk/Qty | Cat No | Price |
|---|---|---|---|
| **A.** 9mm Bolt | 25 | H 1206 | **$3.50** |
| **B.** 12mm Bolt | 25 | H 1208 | **$3.75** |
| **C.** 25mm Bolt | 25 | H 1212 | **$3.95** |
| **D.** Hexagonal Nut | 25 | H 1200 | **$3.40** |
| **E.** Flat washer | 25 | H 1203 | **$1.95** |
| **F.** Shakeproof washer | 25 | H 1204 | **$2.55** |
| **G.** Spring washer | 25 | H 1205 | **$2.55** |

### M2.5 Mixed Pack 200 pieces

Assorted zinc-plated mixed pack includes 10 x 6, 9, 12, 25mm bolts, 40 nuts, 40 flat, 40 shakeproof and 40 spring washers.
H 1686

$12.80 pk

## M3 NUTS, BOLTS & WASHERS



### M3 Screws/Nuts/Washers

Zinc-plated round head. Size 3mm.

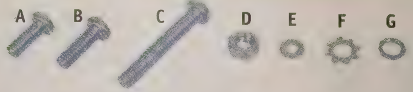
| Description | Pk/Qty | Cat No | Price |
|---|---|---|---|
| **A.** 6mm Bolt | 25 | H 1044 | **$2.80** |
| **B.** 9mm Bolt | 25 | H 1054 | **$3.50** |
| **C.** 12mm Bolt | 25 | H 1064 | **$3.75** |
| **D.** 25mm Bolt | 25 | H 1074 | **$4.20** |
| **E.** Hex Nut (steel) | 30 | H 1324 | **$3.80** |
| **F.** Hex Nut | 25 | H 1325 | **$2.95** |
| **G.** Shakeproof washers | 25 | H 1473 | **$1.95** |
| **H.** Flat washers | 25 | H 1483 | **$2.70** |
| **I.** Spring washers | 25 | H 1475 | **$2.55** |

### M3 Mixed Pack 200 pieces

Assorted zinc-plated mixed pack includes 10 x 6, 9, 12, 25mm bolts, 40 nuts, 40 flat, 40 shakeproof and 40 spring washers.
H 1687

$13.30 pk

## M4 NUTS, BOLTS & WASHERS



### M4 Screws/Nuts/Washers

Zinc-plated steel screws with Philips combination head. Size 4mm.

| Description | Pk/Qty | Cat No | Price |
|---|---|---|---|
| **A.** 9mm | 25 | H 1492 | **$4.20** |
| **B.** 12mm | 25 | H 1494 | **$4.70** |
| **C.** 25mm | 25 | H 1498 | **$4.90** |
| **D.** Hexagonal Nut | 25 | H 1487 | **$3.50** |
| **E.** Flat washer | 25 | H 1489 | **$1.95** |
| **F.** Shake proof washer | 25 | H 1491 | **$2.55** |
| **G.** Spring washer | 25 | H 1485 | **$2.55** |

### M4 Mixed Pack 200 pieces

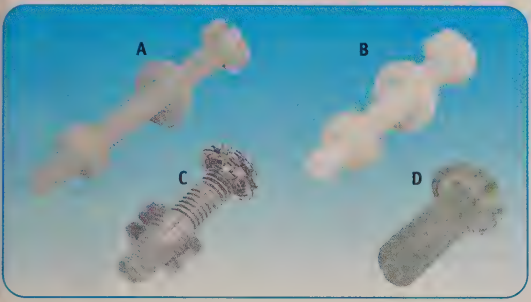
Assorted zinc-plated mixed pack includes 10 x 6, 9, 12, 25mm bolts, 40 nuts, 40 flat, 40 shakeproof and 40 spring washers.
H 1688

$13.60 pk

**Assorted Screw Covers** M3, M4, M5 pack of 30 H 6017* **$6.95**

***Limited Stocks Available**

## NYLON NUTS, BOLTS, WASHERS



### Nylon M3 & M4 Mixed Pack

Includes: 20 x washers, 20 x nuts, 10 x 12mm and 25mm bolts. White nylon cheese head screws. Resistant to high temperatures, ideal for transistor and heatsink use.

**A.** H 1110 M3 Pack $10.70

**B.** H 1130 M4 Pack $10.70

### Plastic M3 Mixed Pack 80 pieces

10 each of 6mm, 8mm, 10mm, 12mm bolts and 40 nuts.

**C.** H 1111 $14.45

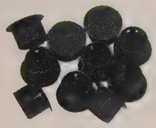
### Plastic M4 Mixed Pack 80 pieces

10 pieces 8mm, 10mm, 12mm, 14mm bolts and 40 nuts .

**D.** H 1131 $15.45

## NYLON HOLE PLUGS

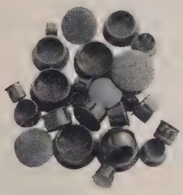
### Nylon Hole Plugs 16.9mm



Suited for the Mounting hole of size 13mm. Black in colour and comes in a pack of 10.

H 1875 $2.40

### Nylon Hole Plugs Assorted

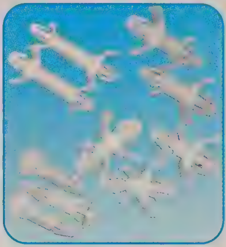


Assorted nylon hole plugs suits various mounting hole sizes listed below. Comes in a pack of 30 – 5 each of 12mm, 13mm, 17mm, 20mm, 23mm and 25mm.

H 1880 $6.95

## NYLON SUPPORTS

### PCB Nylon Supports



Nylon PCB supports for projects where PCB mounting holes are close to tracks.

| Description | Qty/Pk | Cat No | Price |
|---|---|---|---|
| 5mm | 10 | H 1881 | $2.75 |
| 10mm | 10 | H 1883 | $2.80 |
| 20mm | 10 | H 1885 | $2.85 |
| 10mm M3 | 10 | H 2009 | $2.85 |
| 6mm flush M4 | 10 | H 1892 | $2.75 |
| 12mm flush M4 | 10 | H 1893 | $2.85 |

## BRACKETS

### Right-Angle Metal Brackets

Measuring 8mm x 16mm x 6mm wide with 3mm clearance and one adjustable slot. Pack of 6.

H 1895 $10.60

## MATRIX BOARD PINS & SOCKETS

### Matrix Board Pins

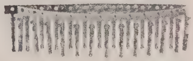
Matrix board pins are designed to make connections to PCBs quick and easy.

**1mm Round**

Pack of 50

H 5590 $3.95

**Matrix Sockets**



Socket to suit. Pack of 25.

H 5592 $4.95

**Solder Lugs Mixed Pack 20pk**

Pack of 20. Includes 10 x M3 hole and 10 x M4 hole.

H 5596 $3.80

## SPACERS

## INSULATED SPACERS

### Insulated Spacers

Insulated spacers complete with screws and washers. 8mm outside diameter requiring a 3mm clearance hole. Pack of 5.

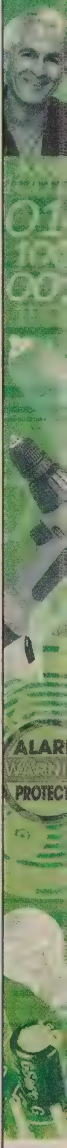
| Description | Cat No | Price |
|---|---|---|
| **A.** 10mm | H 1861 | $6.80 |
| **B.** 15mm | H 1862 | $6.90 |
| **C.** 20mm | H 1871 | $7.10 |
| **D.** 25mm | H 1872 | $7.40 |

## TAPPED SPACERS

### Tapped Spacers

Zinc-plated steel-tapped hexagonal spacers to suit M3 screw. Packs of 6.

| Description | Cat No | Price |
|---|---|---|
| **A.** 9mm | H 1882 | $4.60 |
| **B.** 12mm | H 1884 | $4.80 |
| **C.** 19mm | H 1886 | $5.20 |
| **D.** 25mm | H 1888 | $5.70 |

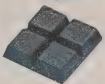


# Repair Kits, Rubber Feet, Magnets & Springs

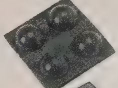
## RUBBER FEET (ADHESIVE)

### Acrylic Feet
Self adhesive clear acrylic feet. Pack of 4.
H 1740
$\$2^{75}$

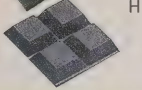
### Self Adhesive (Small)
15mm x 15mm square rubber feet. Pack of 4.
H 1745
$\$2^{95}$



### Rubber Feet 11mm x 5mm
Pack of 4.
H 1748
$\$3^{40}$

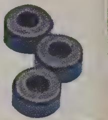


### Self Adhesive (Large)
20mm x 20mm rubber feet. Pack of 4.
H 1749
$\$3^{95}$



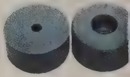
## RUBBER FEET (SCREW)

### Screw-On Round
13mm round rubber feet. 3mm fixing hole. Pack of 8.
H 1736
$\$3^{95}$



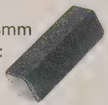
### Large Rubber Feet
18mm (D) x 10mm (H). Pack of 4.
H 1741
$\$4^{90}$

### Jumbo Rubber Feet
34mm (D) x 17mm (H). Pack of 4.
H 1739
$\$6^{95}$



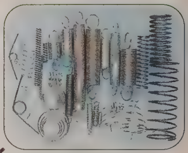
## MAGNETS

### Bar Magnet
Overall Size: 26x8x8mm
Operation Distance: 10mm from reed switch
L 5214
$\$3^{90}$



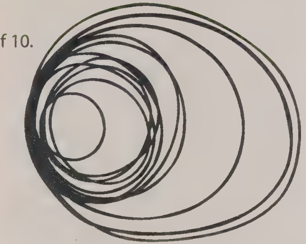
### Mixed Magnet Set
Great for hobby use and for experimenting with magnetic fields.
H 6000
$\$5^{60}$

### Mixed Spring Pack
With 30 different springs including battery terminal springs, compression springs, tension springs and loop/return springs.
H 1676
$\$10^{80}$pk



## REPAIR KITS

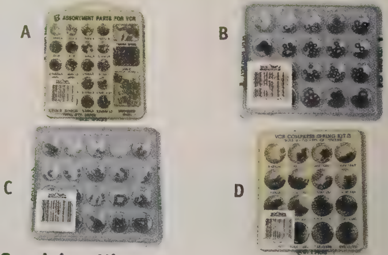
### Audio Drive Belts
Comes in assorted packs of 10.
Sizes include:
25mm x1.2mmx1.2mm
40mm x1.2mmx1.2mm
44mm x1.2mmx1.2mm
46mm x1.2mmx1.2mm
49.5mmx1.2mmx1.2mm
57mm x1.2mmx1.2mm
105mm x1.2mmx1.2mm
125mm x1.2mm x 1.2mm
82.5mmx1.4mm x 1.4mm
100mm x1.6mm x 1.62mm
H 6015
$\$8^{20}$pk



### Assorted Turntable Belts
Pack of 11 assorted turntable belts in a variety of sizes. Sizes include:
125mm x 5.0mm x 0.7mm
170mm x 5.0mm x 0.6mm
172mm x 5.0mm x 0.6mm
185mm x 5.0mm x 0.7mm
192mm x 5.0mm x 0.7mm
201mm x 5.0mm x 0.7mm
207mm x 5.0mm x 0.8mm
245mm x 5.0mm x 0.8mm
270mm x 5.0mm x 0.8mm
285mm x 5.0mm x 0.8mm
310mm x 5.0mm x 0.8mm
H 6018
$\$34^{95}$pk

WHOLESALE DIVISION
For bulk pricing and delivery to your door, contact our experienced customer service team.
0800 373 347
DICK SMITH ELECTRONICS
That's where you go!
DIRECT SALES

### Video Drive Belts
Comes in assorted packs of 14.
Sizes include:
22mm x 1.2mm
40mm x 1.2mm
45mm x 2.0mm
60mm x 1.0mm
70mm x 1.0mm
83mm x 1.6mm
97mm x 1.2mm
98mm x 2.4mm
114mm x 1.8mm
121mm x 12.3mm
56mm x 0.8mm x 8.0mm
76mm x 0.6mm x 6.0mm
91mm x 0.6mm x 5.8mm
92mm x 1.2mm x 10.0mm
H 6016
$\$14^{30}$pk

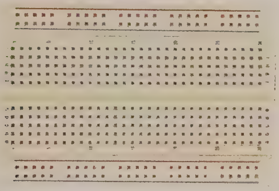


### VCR Servicing Kits
An assortment of parts commonly used in VCR's. Ideal for the service technician or the DIY electronics enthusiast.

| | | |
|---|---|---|
| **A.** 240 piece Assorted VCR Parts set. | H 1670 | $23.45 |
| **B.** 200 piece assorted E ring and washer set. | H 1671 | $23.45 |
| **C.** 100 piece VCR tension spring set. | H 1677 | $23.45 |
| **D.** 80 piece VCR compression Spring Set. | H 1678 | $23.45 |

***Limited Stocks**

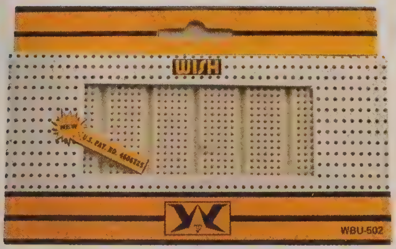
These high quality low static breadboard sets with printed coordinates are ideal for prototyping and educational use. The acetal material used means the insertion holes can withstand prolonged use without deformation and wear and tear.



### Small Breadboard

Small 300 hole breadboard without baseplate. Clip onto other boards to increase size to meet your requirements. Model WBU301J

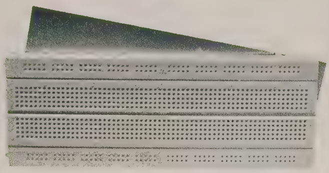
| No. Distributed Buses | Holes | No Buses | Cat No | Price |
|---|---|---|---|---|
| 2 | 300 | 60 | H 4035 | $12.95 |



### Large Breadboards

Large, 800 hole breadboard with 10 distributed buses. Expandable by connecting to other boards. Model WBU502

| No. Distributed Buses | Holes | No Buses | Cat No | Price |
|---|---|---|---|---|
| 10 | 800 | 160 | H 4025 | $24.95 |



### Medium Breadboard

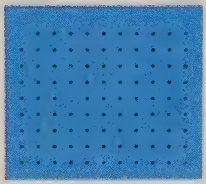
640 hole, 8 distributed bus breadboard without baseplate. Clips to other boards to make any size you require. Model WB102

| No. Distributed Buses | Holes | No Buses | Cat No | Price |
|---|---|---|---|---|
| 8 | 640 | 128 | H 4044 | $21.50 |

### Jump Wire Kit

140 jump wires in 10 different colours and 14 different lengths. All with right-angled bends at each end. In handy plastic divider box.

H 4030 $12.70

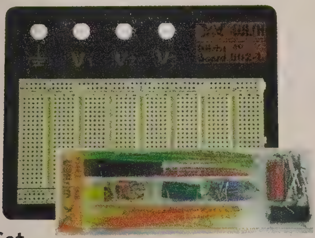


### Plastic Project Board

122 x 110 x 14mm plastic breadboard as used in Funway Into Electronics. 98-hole matrix for connections and securing components.

H 4050 $3.95

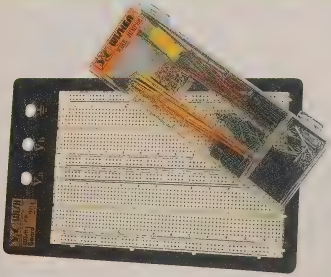
## BREADBOARD SETS



### Basic Breadboard Set

This 800 hole breadboard set with non-slip baseplate, binding posts and jump wires is ideal for one off project design work or for anyone wanting to experiment with low voltage electronic circuits.

| No. Distributed Buses | Holes | No Buses | Cat No | Price |
|---|---|---|---|---|
| 10 | 800 | 160 | H 4020 | $41 |



### Small Breadboard Set

Great for low voltage design work. It's faster, easier and cleaner than working directly on PCBs. Mounted on a base plate with non-slip feet and holes for binding posts. Complete with a good selection of jump wires and binding posts.

| No. Distributed Buses | Holes | No Buses | Cat No | Price |
|---|---|---|---|---|
| 8 | 1260 | 252 | H 4040 | $49.95 |

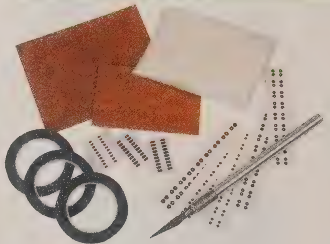
# PCB Manufacturing

*As the Printed Circuit Board (PCB) is the basis of most electronic projects, enthusiasts have much to gain by developing the knowledge and skill needed to produce this primary component at an amateur level. A PCB consists of a layer of insulating material, with a pattern of thin metal foil, on one or both surfaces. The foil pattern becomes the interconnecting conductors in an electronic circuit. The foil pattern for the circuit can be formed by photographic or non-photographic methods.*

*In the non-photographic method, a protective coating, in the shape of the desired conductor pattern, is applied to the copper surface, usually by a screen printing process. The remaining exposed copper is then chemically etched away.*

*To produce a circuit pattern by photographic means, a high contrast facsimile of the final foil conductor pattern is produced. This facsimile, or phototool as it is referred to, is placed over a blank board treated with a photosensitised etch resist. It is then exposed to ultra violet light. The board is then placed in a developer solution before the etching stage where the unwanted copper is removed leaving a copy or 'print' of the original artwork. This process is not unlike photographic printing techniques, hence the name, 'printed circuit'.*

*DSE have a range of products to suit those interested in producing their own printed circuit boards, from the Direct Etch Pen for non-photographic use, through to the PCB Etching tank for fast and efficient etching, and the UV Exposure Box for the serious enthusiast.*



**Technical Design PCB Kit #1**

With 2 x pre-sensitised PCBs, knife, developer, 8 x donut pad sheets, 3 x PC artwork tapes & 4 x DIP pattern sheets.

N 5981 **$23.80**

**PCB Etch Kit**

Everything you need for making PCBs.

Instructions, PC resist pen, etchant and sample PCBs.

N 5651 **$29.95**

**UV Exposure Box**

High-quality UV exposure box ideal for school, small business or home use. An easy way to expose sensitised PCBs.

N 5984 **$225**

ACTION MARKER Fine Line

**Direct Etch Pen**

The pen is filled with a lacquer ink which is impervious to aqueous PCB etch solutions. Ideal for touch-ups or direct etch boards.

N 5181 **$11.40**

circuit works
conductive pen

**Circuit Works Conductive Pen**

Silver based pen ideal for electronic design, prototype and repair applications. Use Circuit Works to link components, repair defective traces and shield delicate electronics. Dries in minutes, solderable at low temperatures. 8.5g Pen.

N 5184 **$33.50**

**PCB Bubble Etching Tank**

Ideal for PCBs up to 20 x 25cm in size and has PCB clips for easy handling. Suitable for etching single and double sided PCBs Use with an optional air pump and heater (not supplied) for fast and efficient etching.

N 5988 **$84**

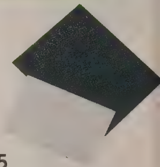
Air Pump for Bubble Etching Tank

N 5987 **$14.95**

**Positive Photo Resist PCB Set**

Includes 2 PCB's. Sizes: 100 x 80mm & 80 x 50mm. Suitable to use with Technical Design PCB Kits.

N 5985 **$9.95**



**Ferric Chloride Etchant**

Supplied in a handy 500ml no-spill bottle of working solution (ferric chloride). No hassles with beads and hot water.

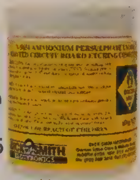
N 5652 **$25.40**

*Note:
Due to the chemical composition of N 5652 transport restrictions may apply.

**Ammonium Persulphate PCB Making Etchant**

Special long-lasting compound for use when etching PCBs. 600g.

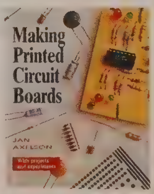
N 5654 **$16.95**



**Making Printed Circuit Boards Book**

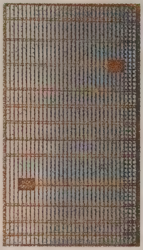
Takes the reader step-by-step from schematic diagram to finished project and includes 25 different projects to get you started.

B 1630 **$54.95**



## STRIPBOARDS

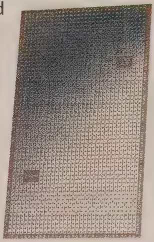
### Printed Stripboards



The most versatile board! Alphanumeric grid helps positive pin identification. Each board has 2.54mm hole spacings. Size 88 x 153mm.

H 5616 **$7.95**

### Versatile Stripboards



Continuous pre-drilled stripping on a high-grade insulator. It's similar to the old English Veroboard. 2.54mm hole spacing.

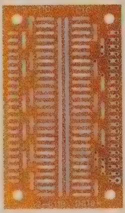
76x88mm H 5614 **$5.30**

88x153mm H 5612 **$5.95**

95x308mm H 5112 **$9.95**

## PROTOTYPE BOARDS

### Small Prototype Board



This PCB allows for multiple ICs connections with its 118 links available. Each board has 310 holes, 44mm (W) x 75mm (L).

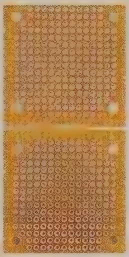
H 5604 **$3.90**

### Large PCB Prototype Board

This versatile PCB has etched copper pads. Each board has 2,200 holes. Also has numeric and alphanumeric system to help positive pin identification and is 115mm (W) x 160mm (L).

H 5609 **$7.50**

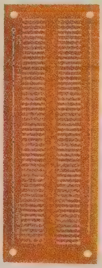
### PCB Dual Prototype Board



This small, versatile board has etched copper pads. Each board has 198 holes or a total of 396 holes for both sides. Use together or cut in half and use as separate PCBs. Size: 46mm (W) and 93mm (L).

H 5607 **$4.50**

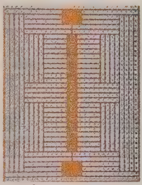
### Medium Prototype Board



This PCB also allows for multiple ICs connections. Also has numeric numbering system to facilitate positive pin identification. Each board has 503 holes, 49mm (W) x 131mm (L).

H 5605 **$4.50**

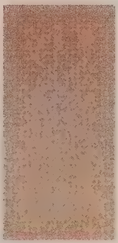
### Prototype Board



Designed by our R&D staff! Similar to 'Veroboard' but has the advantage of tracks running in both directions. Can accommodate digital designs. Typically 2 x 14 or 16 PIN, or 5 x 8 PIN devices. Tracks are corrosion-resistant plating punched with 936 holes on a 0.1" grid.

H 5660 **$5.95**

### Blank Printed Circuit Boards

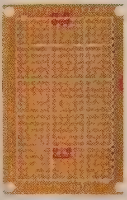


Heavy duty FR-4 epoxy glass PC board with permanently bonded 1oz copper on one or both sides. Three sizes.

| | | |
|---|---|---|
| 150x75mm | H 5540 | **$5.10** |
| 150x150mm | H 5545 | **$7.30** |
| 300x300mm | H 5550 | **$18.20** |

## EXPERIMENT PROTOTYPE BOARDS

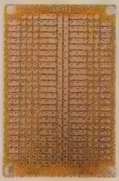
### Small Experiment Prototype Board



This small, versatile board has etched copper pads. Each board has 371 holes and is 47mm (W) x 72mm (L).

H 5603 **$3.90**

### Medium Experiment Prototype Board



This PCB allows for multiple ICs connecting with its 98 links available. Each board has 417 holes and is 47mm (W) x 72mm (L).

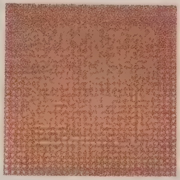
H 5608 **$4.50**

### Aluminium Sheet

Blank aluminium sheet ideal for making front panels and folding into small boxes. 18 gauge, measures 300 x 300mm.

H 2560 **$13.60**

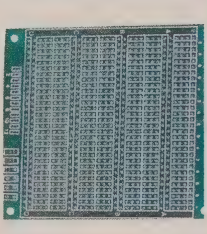
### Matrix Board



Tough phenolic board with punched holes. Ideal for prototypes, bread boards, projects etc. 2.5mm hole spacings on a 75mm x 76mm board.

H 5310 **$3.50**

### Fibreglass Board



Single sided printed circuit board, silk screened. 95 x 85mm, 948 holes.

H 5613 **$11.60**

### Printed Mounting Strip

A handy 47-way mounting strip for resistors, capacitors, etc. Terminals are numbered for easy identification.

H 6610 **$5.20 ea**

# *Plastic Boxes*

## Zippy Boxes Black, with Both Aluminium and Plastic Lids

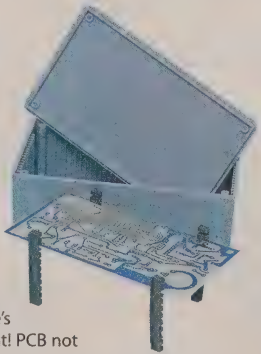
Preferred and used by the major electronics magazines because of their quality, versatility and value. Ideal for a wide range of applications, they're made from impact-resistant ABS plastic and have deep ribs which add to the strength and are ideal for mounting PCBs without screws. Each comes with two lids, one aluminium and the other plastic, which can be sealed against the weather.

| Description | Size (mm) | Cat No | Price |
|---|---|---|---|
| Small - UB5 | 28 x 54 x 83 | H 2855 | **$4.95** |
| Medium - UB3 | 41 x 68 x 130 | H 2853 | **$6.20** |
| Large - UB1 | 50 x 90 x 150 | H 2851 | **$7.30** |
| Giant UB2 | 60 x 113 x 196 | H 2852 | **$10.80** |

## Clear Style Zippy Boxes

See your handy work clearly with these tough ABS plastic boxes with strengthened ribbing.

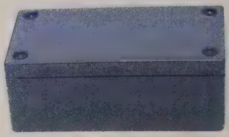
| Description | Size (mm) | Cat No | Price |
|---|---|---|---|
| UB5 Style | 28 x 54 x 83mm | H 2955 | **$5.60** |
| UB3 Style | 41 x 68 x 130mm | H 2953 | **$6.45** |



## PCB Slot Boxes With "Tractor Grip"

If you're building a project that's PCB-based, these are exactly what you need! Available in seven handy sizes and made of strong grey ABS plastic, they come complete with case screws and 'tractor-grip' board supports that mesh with matching grooves on all four sides of the case's interior to ensure your PCB stays put! PCB not included.

| Description | Size (mm) | Cat No | Price |
|---|---|---|---|
| (GG-01) | 55 x 55 x 42 | H 2870 | **$6.70** |
| (GG-02) | 75 x 50 x 27 | H 2872 | **$7.40** |
| (GG-03) | 85 x 56 x 40 | H 2874 | **$8.20** |
| (GG-04) | 100 x 50 x 40 | H 2876 | **$9.40** |
| (GG-05) | 125 x 60 x 40 | H 2878 | **$9.30** |
| (GG-06) | 145 x 85 x 50 | H 2880 | **$10.20** |
| (GG-07) | 180 x 110 x 60 | H 2882 | **$12.20** |

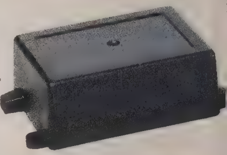


## Black Project Boxes

A great range of versatile project boxes. Ideal for a wide range of applications. The lids have four mounting stand-offs to easily accommodate PCB's.

| Size (mm) | Cat No | Price |
|---|---|---|
| 48 x 95 x 37 | H 2840 | **$5.60** |
| 60 x 115 x 43 | H 2841 | **$6.80** |
| 75 x 135 x 49 | H 2842 | **$9.95** |
| 95 x 160 x 61 | H 2843 | **$11.30** |

## Utility Junction Black Box



They are ideal for many applications with square cable entries on each end.

**Size (mm)**

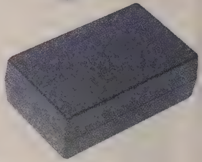
| WxLxH | Cat No. | Price |
|---|---|---|
| 65 x 38 x 27 | H 2921 | **$3.60** |
| 82 x 57 x 33 | H 2923 | **$4.80** |

## Small Clear Box

With pre-drilled speaker holes.
Ideal for small audio style projects.
Size: 83 x 55.5 x 44mm
H 2858

**$\$4^{80}$**

## PJ Box



A well finished mini case which is ideal for all-weather projects! Made in two identical halves which can be glued together for a water-tight seal.
Size: 90 x 56 x 32mm.
H 2857

**$\$6^{60}$**

## Hand-held Case with Terminals, Red Lens

This case comes with two plastic panels, 1 grey and 1 red perspex. This case has a battery compartment that can accept 2 AA or a 9V Battery.135mm(W) x 70mm (L) x 24mm(H).
H 2949

**$\$13^{70}$**

## Box with Battery Compartment

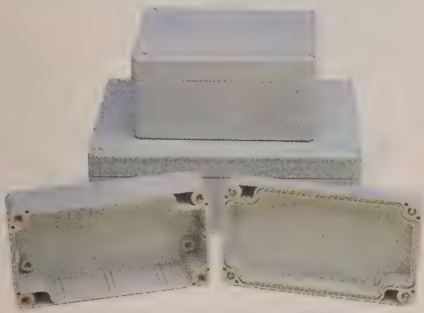
Plastic case with inbuilt battery compartment, ideal for battery powered kit sets.
Dimensions: 139x55x23mm
H 2950

**$\$14^{80}$**

## High Quality ABS Plastic Boxes

This range of moulded ABS plastic cases are ideal for many kit and design applications.

| Size (mm) L x W x H | Cat No | Price |
|---|---|---|
| 90 x 50 x 16mm | H 2831 | **$4.70** |
| 90 x 50 x 32mm | H 2832 | **$5.80** |
| 150 x 80 x 30mm | H 2834 | **$9.70** |

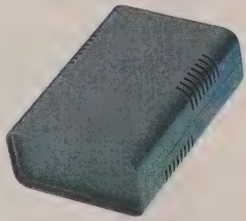


## Sealed Polycarbonate Boxes

Made from tough polycarbonate thermoplastic, these 3mm wall thickness boxes are ideal for uses requiring a quality sealed enclosure that's more rugged than most ABS boxes. They feature a tongue and groove sealing system with a neoprene gasket, and the stainless steel lid fixing screws thread into brass inserts that are outside of the sealing area. These boxes are designed to IP65 of IEC529 and NEMA4 (dust and hoseproof), and have a wide –40 to 125°C operating temperature. Internal threaded brass inserts allow for easy mounting of PCBs or terminals.

| Size (mm) L x W x H | No | Price |
|---|---|---|
| 64 x 58 x 35mm | H 2859 | **$7.20** |
| 115 x 65 x 40mm | H 2860 | **$13.40** |
| 82 x 80 x 55mm | H 2869 | **$14.60** |
| 115 x 90 x 55mm | H 2863 | **$14.60** |
| 171 x 121 x 55mm | H 2864 | **$22.30** |
| 121 x 171 x 80mm | H 2867 | **$25.70** |
| 146 x 222 x 55mm | H 2865 | **$27.40** |

## Instrument Case
## 95 x 45 x 145mm

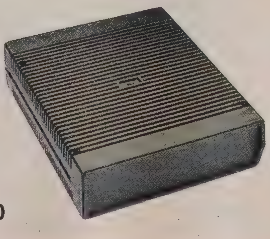


A precision instrument case that has specially designed vents to allow the free circulation of air. Snap together design with front and back panels.

H 2503

**$22.30**

## Plastic Case
## 210 x 55 x 175mm

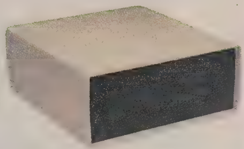


Just the right size and shape for a large range of instruments, communications equipment, etc. Has removable front and rear panels and provision for speaker at both top and bottom. Comes with assembly screws.

H 2520

**$18.50**

## Instrument Case
## 155 x 65 x 160mm

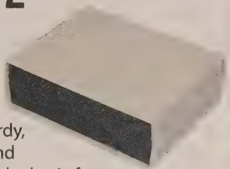


Has 16 vertical mounting slots for 145mm long PCBs (up to 55mm high) and 23 mounting points for horizontal PCBs. Top and bottom halves screw together. Includes front and back panels and screws.

H 2508

**$22.90**

## Instrument Case
## 200 x 65 x 160mm



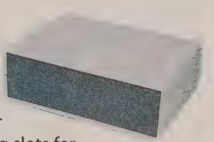
Slotted to allow many and varied PCB mounting positions. Attractive and sturdy, it's ideal for a large range of projects and instruments. Comes complete with black plastic front and rear panels, assembly screws and rubber feet.

H 2505

Blank Plastic Panel to suit H 4052 **$3.50**

**$24.95**

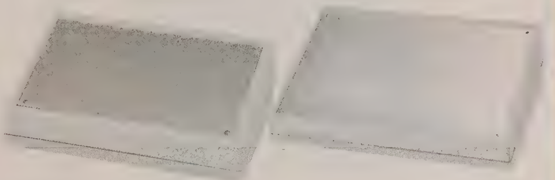
## Instrument Case
## 250 x 80 x 190mm



Superbly moulded and fitting instrument case which separates into two halves and has plastic front and rear panels. There are plenty of PCB mounting slots for mounting either vertically or horizontally and it comes with rubber feet and assembly screws.

H 2507

**$28.50**



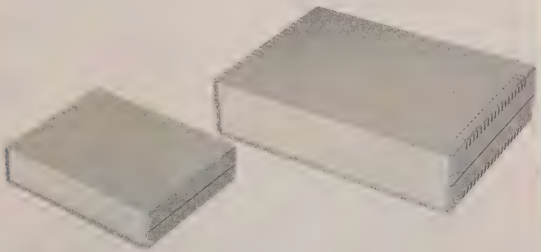
## Sloping Cases

These plastic cases are ideal for audio and test equipment projects or for those larger projects requiring a sloping panel.

**Size:** 189 x 134 x 32 x 55mm H 2913 **$17.20**

Plastic case with a 1mm thick metal panel.

**Size:** 260 x 160 x 35 x 80mm H 2912 **$45.40**

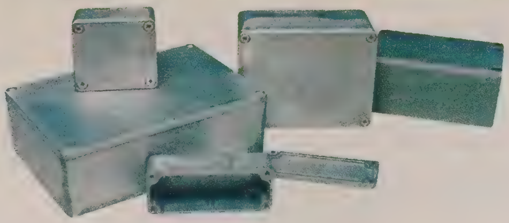


## Instrument Cases

These high impact ABS plastic cases have a two part design with a tongue groove joint. They are lightly textured which affords a non-scratch surface and maintains a high quality finish. Features guide slots for vertical mounting of PCBs.

| Size (mm) WxDxH | Cat No | Price |
|---|---|---|
| 140x110x35 | H 2512 | **$9.60** |
| 260x180x65 | H 2514 | **$22.30** |

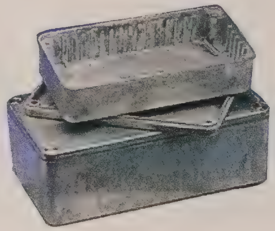
# Metal Boxes



## Sealed Diecast Aluminium Boxes

Ideal for outdoor projects that require both weatherproof and RF shielded enclosures, as well as in industrial and commercial applications. These boxes are made from corrosion-resistant diecast aluminium (ADC-10 to Japan Industrial Standard) and feature a recessed neoprene gasket to meet IP65 of IEC529 and NEMA4 (dust and hoseproof) requirements. The wall mounting holes and stainless steel lid fixing screws are also outside the sealing area to prevent the ingress of moisture. Complete with copper-plated ground screw and washer.

| Size (mm) LxWxH | Cat No | Price |
|---|---|---|
| 36 x 90 x 30 | H 2230 | **$11.40** |
| 64 x 58 x 35 | H 2231 | **$11.40** |
| 115 x 65 x 55 | H 2233 | **$18.20** |
| 115 x 90 x 55 | H 2234 | **$23.50** |
| 171 x 121x 55 | H 2236 | **$32.50** |



## Diecast Aluminium Boxes

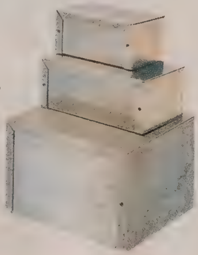
Ideal for RF projects. They are lightweight and extremely robust. Also ideal for projects involving heat as the case itself makes an excellent heat sink.

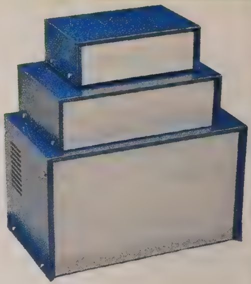
| | | |
|---|---|---|
| **Diecast Aluminium Box - 100 x 50 x 25mm** | H 2221 | $\$15^{60}$ |
| **Diecast Aluminium Box - 150 x 80 x 50mm** | H 2206 | $29 |

## Aluminium Boxes

Economical and easy to work with! A wide range of sizes to suit just about any project. Made in two sections, they come complete with screws.

| Size (mm) LxDxH | Cat No | Price |
|---|---|---|
| 104 x 60 x 46 | H 2305 | **$11.40** |
| 127 x 102x 76 | H 2320 | **$12.95** |
| 152 x 132x 103 | H 2330 | **$17.90** |



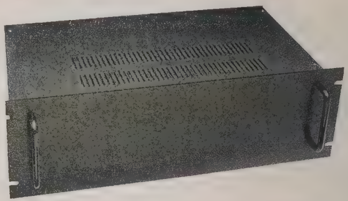


## Instrument Cases

Quality Australian made K & W instrument cases. With a steel top, cover and sides plus aluminium base/front/rear. A 5mm recess on the top and sides give the front panel a professional finish. Comes with either pressed dimple feet or rubber feet (depending on size).

**Front Panel Size:**
Length (-10mm) x Height (-5mm)
**Overall Size:**

| Size (mm) LxDxH | Vented | Cat No | Price |
|---|---|---|---|
| 255 x 77 x 155 | Yes | H 2808 | **$27.50** |
| 255 x 150 x 155 | Yes | H 2810 | **$32.00** |
| 305 x 90 x 200 | Yes | H 2812 | **$36.80** |



## Economy 19" Rack Case

Quality black instrument case fits standard 19" racks. Supplied flat and can be assembled in minutes. Heavy gauge (3mm) aluminium front panel and slotted steel top and bottom panels.
Size: 420 x 250 x 140mm.
H 2481

**$88**

## Medium Aluminium Frame Tool Case

Keep your precious equipment safe with this sturdy lockable tool case. Ideal for safely carrying sensitive test equipment, cameras, notebook computers etc as well as standard electronic tools. Padded interior dividers and removable tool holder are provided for easy partitioning of the storage space.
Size (mm): 320(L) x 230(W) x 150(H).
(Tools not included).
T 4858

**$72**

## Aluminium Frame Tool Case

A rugged lockable serviceman's case with aluminium frame that's suitable for carrying sensitive test equipment, cameras, notebook computers etc as well as standard electronics tools. It's supplied with an internal removable tool holder, 5 adjustable padded dividers and a shoulder carry strap.
Size (mm): 480(L) x 326(W) x 150(H).
T 4856

$\$79^{95}$

## Component Case with Adjustable Divider

Component storage box with up to either 18 or 21 adjustable compartments for storing components, nuts and bolts or sewing accessories.

**Small:** 200 x 135 x 40mm
H 2603 $9.95

**Large:** 275 x 180 x 45mm
H 2602 $14.95

Accessories not included

## Zag Professional 25 Drawer Organiser

Handled organiser with 25 shiftable and removable compartments to store components or hardware. Clear polycarbonate lid with two snap-lock latches keeps all materials in place. Colour may vary. Dimensions: 423 x 334 x 52mm.
H 6800 $39.50

## Component Case with 5 Segments

A durable plastic storage case with five storage compartments. Dimensions: 200 x 110 x 43mm.
H 4498 Accessories not included $3.95

## Component Case with 14 Segments

A durable plastic storage case with 14 storage compartments. Dimensions: 275 x 190 x 42mm.
H 4499 Accessories not included $7.35

## 25 Drawer Parts Cabinet

A 25-drawer plastic cabinet ideal for storage of components and hardware items. Can be mounted on to a wall. Dimensions: 120 x 300 x 225mm.
H 4587 Accessories not included $15.95

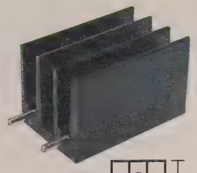
## Single Tray Toolbox

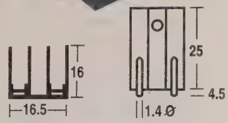
Single tray black and yellow toolbox. Dimensions: 370 x 185 x 130mm.
H 4593 Accessories not included $12.50

# Heatsinks

## PCB Mount Heatsink

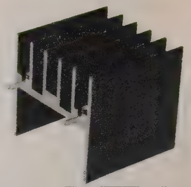
Designed to be soldered directly to the tracks with the fins mounted vertically for maximum efficiency. Pre-drilled to take a single flat-pack semiconductor.
**Thermal Resistance: 18°C/W**
H 3490 **$3.95**

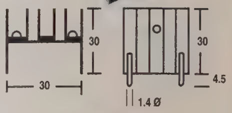




## PCB Mount Heatsink

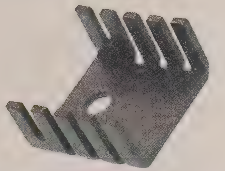
Designed to be soldered directly to the tracks with the fins mounted vertically for maximum efficiency. Pre-drilled to take a single flat-pack semiconductor.
**Thermal Resistance: 10°C/W**
H 3495 **$7.20**

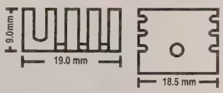




## Micro U Heatsink

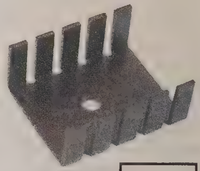
To suit TO-220 or TO-126 transistors. Constructed from anodised aluminium.
**Thermal resistance: 28°C/W**
H 3403 **$1.45**

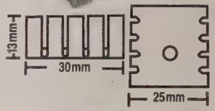




## Large U Heatsink

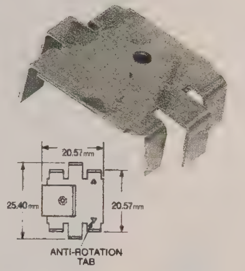
Heatsink to suit TO-220 or TO-126 transistors. Constructed from anodised aluminium and it's small size will fit into the tightest of places.
**Thermal Resistance: 19°C/W**
H 3404 **$2.25**





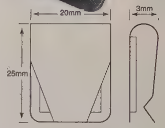
## Clip On TO220 Heatsink

Excellent for retrofitting to existing designs for additional cooling. Lightweight design minimises stress on component.
**Thermal Resistance: 1.3°C/W**
H 3432 **$1.25**



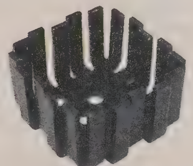
## Snap-on TO-220 Cooler Heatsink

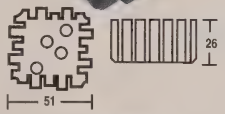
Snap-on heatsink to suit TO-220 type transistors, they simply snap over the transistor. Install in seconds.
**Thermal Resistance: 32°C/W.**
H 3416 **$2.50**



## TO-3 Powerfin Heatsink

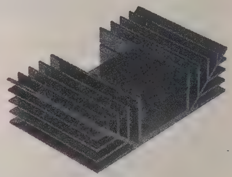
The unique fin design gives a very high air-to-metal ratio, giving maximum heat dissipation in a very small space.
**Thermal resistance: 5°C/W**
H 3400 **$4.90**

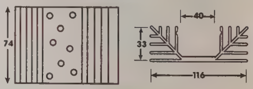




## Radial Fin Power Heatsink

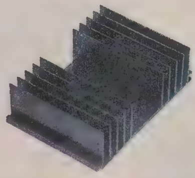
The design of this heatsink makes it ideal for efficient heat dissipation over a small area. Pre-drilled (2 x TO-3).
**Thermal Resistance: 1.9°C/W**
H 3485 **$15.80**

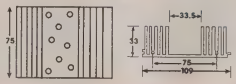


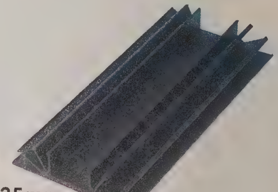


## Undrilled Versatile Heavy Duty Power Heatsink

This ingenious design allows flat horizontal and vertical mounting.
**Thermal Resistance: 2°C/W**
H 3460 **$10.95**

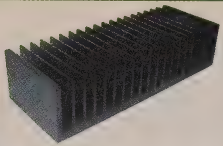






## Blank Fin Heatsink 225mm

With their thick base and fan type fins, these heatsinks can dissipate massive amounts of heat.
**Thermal Resistance: 1.0 degrees C/W**
H 3426 **$19.95**



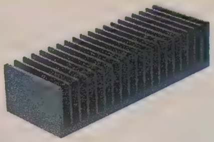
### Heavy Duty Heatsink 200mm x 75mm

Outstanding thermal performance in its range with a quality machined finish, as supplied to international electronic manufacturers. Ideal for power amplifier projects. Thermal resistance: 0.55° C/W.

H 3406

$22.50

| Cat No. | Length | Thermal Resistance | Section Height |
|---|---|---|---|
| H 3406 | 200mm | 0.55°C/W | 48mm |



### Heavy Duty Heatsink - 300mm x 75mm

Outstanding thermal performance in its range with a quality machined finish, as supplied to international electronic manufacturers. Ideal for power amplifier projects. Thermal resistance: 0.40° C/W.

H 3408

$30.40

| Cat No. | Length | Thermal Resistance | Section Height |
|---|---|---|---|
| H 3408 | 300mm | 0.37°C/W | 48mm |

## HEATSINK COMPOUND

### Economy Heat Transfer Compound

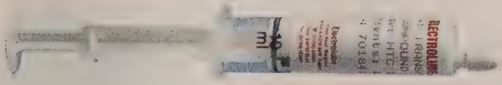
High quality heat conducting paste, used to thermally connect a semiconductor device to a heatsink to aid heat transfer.

Temperature range: -200ºC to 130ºC.

Thermal conductivity: 0.9W/mK. 10g tube.

N 1205

$6.20

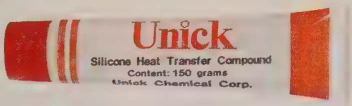


### Heat Transfer Compound

Non-silicon compound for reliable and efficient dissipation of heat. Should be applied to base and mounting studs of components, thermostats and heatsinks. 10ml/20gm syringe.

N 1200

$12.95



### Heat Transfer Compound

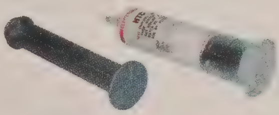
High quality heat conducting paste, used to thermally connect a semiconductor device to a heatsink to aid heat transfer.

Temperature range: -200ºC to 130ºC.

Thermal conductivity: 0.9W/mK. 150g tube.

N 1206

$25.30



### Electrolube Heatsink Compound 35ml

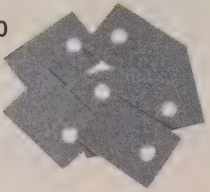
Silicone-free thermal paste, excellent non-creep characteristics. Excellent thermal conductivity - 0.9W/mK.

Temperature range: -200ºC to 130ºC. White colour enables treated parts to be easily identified. Easy to handle and economic to use.

N 1199

$19.80

## SILICONE INSULATORS

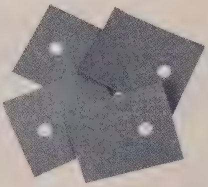


### Silicone Insulator TO-220

Transistor washers that do not require silicone grease but have the same effectiveness as mica and grease. Comes in a pack of 10.

H 2916

$2.70

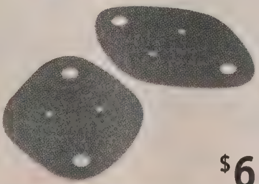


### Silicone Insulator TO-3P

Transistor washers that do not require silicone grease but have the same effectiveness as mica and grease. Comes in a pack of 10.

H 2918

$3.25



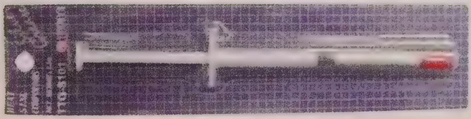
### Silicone Insulator TO-3

Transistor washers that do not require silicone grease but have the same effectiveness as mica and grease. Comes in a pack of 10.

H 2917

$6.70

## TITAN THERMAL GREASE



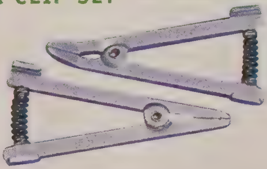
### TITAN Thermal Grease 1.5g

High effect Thermal Grease, silver thermal compound. Operation temperature: -50ºC to 240ºC. Thermal conductivity is greater than 7.5W/mK.

N 1208

$5.90

## HEATSINK CLIP SET



### Heatsink Clip Set

Spring loaded, plier grip clips for heat sensitive components and leads. Made of aluminium for high thermal conductivity, 2 types (one straight, one angled), both are 75mm long.

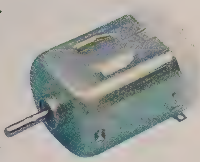
T 2620

$11.45

# Motors, Solenoids, Dynamos, Pumps

## MOTORS

### Low Speed/Low Torque Motor

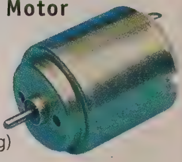


- Voltage Range: 3-12V
- Nominal Voltage: 3V
- Speed (no load): 3,600 RPM
- Current (no load): 0.07A
- Torque@ Max Efficiency: 3.07g-cm
- Body size: 20mm (diam.) x 25mm (long)
- Shaft size: 8.1mm (long), x 2mm (diam.)

P 9000

$2.50

### Medium Speed/Medium Torque Motor

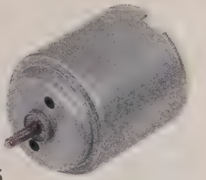


- Voltage Range: 1.5V-3V
- Nominal Voltage: 3V
- Speed (no load): 13,800 RPM
- Current (no load): 0.35A
- Torque @ Max Efficiency: 18.6g-cm
- Body Size: 23.6mm (diam.) x 28.5mm (long)
- Shaft size: 6.5mm (long) x 2mm (diam.)

P 9002

$3.50

### Solar Module Motor



- Voltage Range: 1.5-3V
- Nominal Voltage: 1.5V
- Speed (no load): 3,600 RPM
- Current (no load): 25mA
- Torque @ Max Efficiency: 1.8g-cm
- Body size: 23mm (diam.) x 27mm (long)
- Shaft size: 6.5mm (long), x 2mm (diam.)

P 8980

$3.95

### High Speed/High Torque Motor

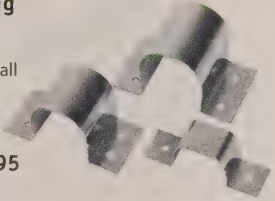
- Voltage Range: 6-12V
- Nominal Voltage: 12V
- Speed (no load): 18,400 RPM
- Current (no load): 0.30A
- Torque@ Max Efficiency: 69.2g-cm
- Body size: 27.5mm (diam.) x 32.6mm (long)
- Shaft size: 12mm (long), x 2.3mm (diam.)

P 9004

$6.95

## MOUNTING BRACKETS

### 7 Piece Motor Mounting Bracket Set



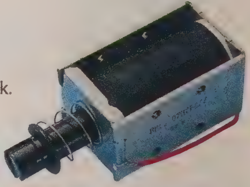
Seven metal brackets designed for firmly fixing our range of small electric motors to a surface. Contains two small, three medium, and two large brackets.

P 9090

$4.95

## SOLENOID

### 6V DC 900mA - 12V DC 1.8A Solenoid



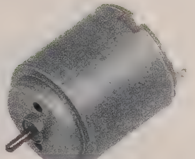
Great for hobbyists and experimenters. Make your own electrically operated door/gate lock. Size: 47.5 (L) x 29 (W) x 26.4 (H).

P 9010

$19.95

## DYNAMOS

### Small DC Dynamo



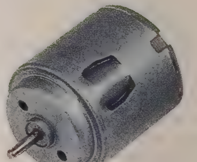
5.5 to 6.0V DC 200mA. 2000-7000 RPM.

- Input rotational speed: 2000 to 7000 RPM
- Input rotational speed typical: 5500 RPM
- Open circuit output voltage: 5.5 to 6V DC
- Short circuit output current: 200mA

P 8950

$6.95

### Mini DC Dynamo



6.0-9.0V DC @ 220mA

Miniature DC Dynamo suitable for a host of hobbies, school projects and experiments.

Input shaft rotational speed: 1000 to 10000 RPM

Output voltage: 920mV @ 31mA to 9.1V @ 220mA

P 8951

$7.50

## PUMPS

### Water Pump 12VDC

Ideal for Automotive windscreen washer, Diorama indoor fountains, models etc. This centrifugal impeller pump is gravity fed and manual priming and is recommended for plain water use only.

Specifications:

- Operating Voltage: 6VDC Min, 12VDC Typical, 13.5VDC Max
- Operating Current: 1 to 3Amps
- Water Pressure: 88kpa
- Average Water Flow: 100ml/min

P 8900

$12.95

### High Pressure 12V Water Pump

This water pump is ideal for DIY enthusiasts, school dioramas, terrariums and garden water fountains. The submersible centrifugal impeller pumping system is suitable for use with water, detergents and thin oils.

Specifications:

- Motor Speed: 16,000 RPM @ 12V, 2A under load
- Pump flow Rate: 3 litres per minute
- Water Pressure: 0.2 PA per cubic meter
- Water Head Height: 1.5-2 meters (Typical)
- Duty Cycle: 20 minutes 'on', 10 minutes 'off'

P 8907

$24.95

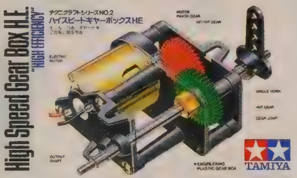
### Planetary Gearbox Set

Planetary Gear box Set
TAMIYA
テクニクラフトシリーズNO.1
遊星ギヤーボックスセット

Instructional set that helps teach the design, construction, and workings of automotive transmissions and precision gearing systems. Includes 3VDC motor, mounting feet, grease, instructional manual and more.

P 9051

$29.95



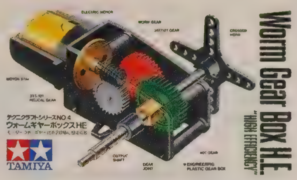
### High Speed Gearbox Set

Provides the student or enthusiast the ability to create a gearbox where speeds can be selected depending on the gearing control. Includes: Polyacetal resin gears, 36/10 teeth reduction gear, 36/14 teeth reduction gear, 36 teeth output drive gear, 40 teeth output drive gear, motor pinion gear, 2 metal output shafts, shaft coupling pieces, brass gear joint, pinion gear alignment tool, motor bracketing adaptor, axle bracket, engineered casing, attachment horns, assorted hardware, 3-4.5VDC motor and easy to follow instructions.

P 9053

$24.95

### Worm Gearbox Set

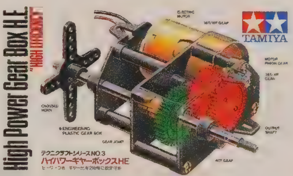


Demonstrates the design and construction of worm gear systems where the motor can be mounted at right angles to the main gearbox, a principle used in clock mechanisms, cake mixers, etc. Includes: Engineered gear box casing, brass gear joint, motor stay bracketing, motor adaptor bracketing, 3-4.5VDC motor, worm drive gear, 40 teeth output drive gear, 36/10 teeth reduction drive gear, 36/14 teeth reduction drive gear, helical drive gear, 2 metal drive shafts, metal shaft pin, gear spacing tool, plastic connection horns, assorted hardware, lubricating grease and an easy to follow instruction manual.

P 9057

$24.95

### High Power Gear Box



Gearbox set designed for high torque output rather than speed. Ideal for creating projects such as cranes, hoists, or investigating pulley systems. Includes: Motor mounting bracket adaptor, gearbox casing, 3-4.5VDC motor, 40 teeth output drive gear, 36 teeth output drive gear, two 36/10 teeth reduction gears, 36/14 teeth reduction drive gear, motor drive pinion gear, two metal drive shafts, brass gear joint, output connection horns, pinion gear alignment tool, assorted hardware and lubricating grease.

P 9055

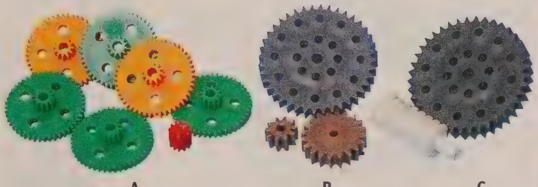
$24.95

### Gearbox With Motor

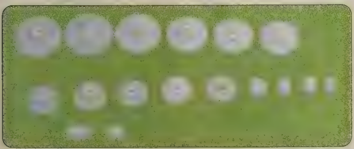
Its simple, versatile design and sturdy construction makes it suitable for a host of uses with a speed reduction ratio of 4:1 to 4096:1, 7 gears allowing 6 different ratios and 18 different speeds, it's ideal for powering models and robots or teaching the principles of mechanics. Includes 1.5-4VDC motor, 7 gears, output shaft and gearbox housing.

P 9020

$24.95



| | | | |
|---|---|---|---|
| A. | 7 pce Gear Set | P 9030 | $14.95 |
| B. | Spur Gear Set | P 9032 | $10.95 |
| C. | Worm Gear Set | P 9034 | $9.95 |

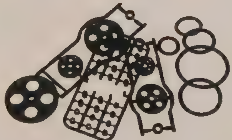


### Nylon Gear Pack of 18

A pack of 18 assorted nylon gears to expand your model building possibilities. Includes: 4 different drive shaft gears, 2 worm drive gears, 5 assorted reduction gears and 7 assorted sprocket gears. Suits P 9000 and P 9002 DC Motors.

P 9040

$7.20



### 40-Piece Pulley Wheel Set

A 40-piece set with shaft size adaptors to fit most hobby motors. Learn how pulley systems help in building construction. Includes 8 assorted sizes pulley wheels, 5 rubber rings and 27 assorted adaptors to fit external drive mechanisms. Ideal for use with H 6015 Audio Drive Belt Pack.

P 9070

$19.95

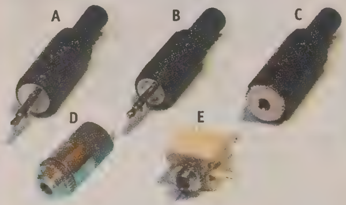
### Servo Motor

This Servo Motor is compatible for use with RC systems. Servo includes Horns and Horn mounting hardware. Specifications: Size 39.5x20x35.6mm, Weight 42g, Speed 0.23 sec/60°, Torque 3.4kg-cm, Current drain @ 4.8V, 380mA (stalled) 3.9mA (idle).

P 9061

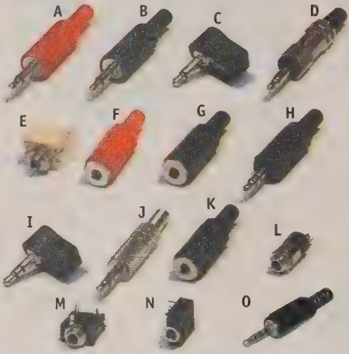
$38.20

## 2.5mm Phono Plugs & Sockets



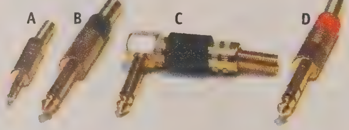
| | | | |
|---|---|---|---|
| A | Mono Plug Plastic In-line | P 1125 | $1.15 |
| B | Stereo Plug Plastic In-line | P 1127 | $2.60 |
| C | Mono Socket Plastic In-line | P 1232 | $2.20 |
| D | Stereo Socket Panel Tubular | P 1222 | $1.95 |
| E | Mono Socket Panel Mount | P 1220 | $1.15 |

## 3.5mm Phono Plugs & Sockets



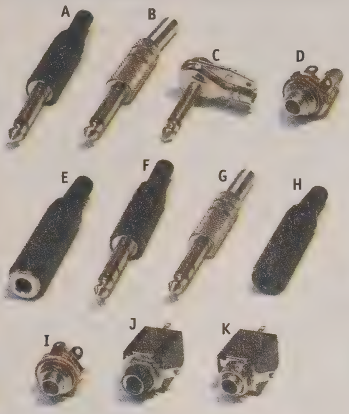
| | | | |
|---|---|---|---|
| A | Mono Plug Red Plastic | P 1132 | $1.30 |
| B | Mono Plug Black Plastic | P 1134 | $1.30 |
| C | Mono Plug Black Plastic Right Angle | P 9098 | $1.30 |
| D | Mono Plug Nickel | P 1136 | $2.10 |
| E | Mono Socket Panel Mount | P 1231 | $1.70 |
| F | Mono Socket Red Plastic In-line | P 1234 | $2.30 |
| G | Mono Socket Black Plastic In-line | P 1236 | $2.30 |
| H | Stereo Plug Black Plastic | P 1140 | $1.60 |
| I | Stereo Plug Plastic Right Angle | P 9099 | $2.10 |
| J | Stereo Plug Nickel | P 1145 | $2.60 |
| K | Stereo Socket Black Plastic Inline | P 1238 | $2.70 |
| L | Stereo Socket Tubular Panel Mount | P 1240 | $2.80 |
| M | Stereo Socket SPST PCB/Chassis Mount | P 1245 | $2.40 |
| N | Stereo Socket PCB Mount | P 9124 | $1.75 |
| O | Four Conductor Plug | P 1148 | $3.25 |

## Gold Phono Plugs & Sockets



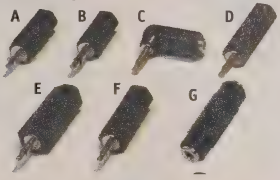
| | | | |
|---|---|---|---|
| A | Plug 3.5mm Stereo Gold | P 1147 | $3.75 |
| B | Plug 6.5mm Mono Gold | P 1163 | $4.25 |
| C | Plug 6.5mm Mono Gold Right Angle | P 1164 | $5.95 |
| D | Plug 6.5mm Stereo Gold | P 1167 | $4.25 |

## 6.5mm Phono Plugs & Sockets



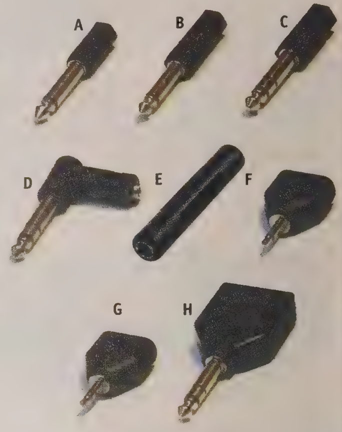
| | | | |
|---|---|---|---|
| A | Mono Plug Black Plastic | P 1160 | $2.25 |
| B | Mono Plug Nickel | P 1162 | $2.90 |
| C | Mono Plug Nickel Right Angle | P 1170 | $2.95 |
| D | Mono Socket SPST Panel Mount | P 1261 | $2.25 |
| E | Mono Socket Plastic In-line | P 1264 | $2.40 |
| F | Stereo Plug Black Plastic | P 1166 | $2.25 |
| G | Stereo Plug Nickel | P 1168 | $2.90 |
| H | Stereo Socket Plastic In-line | P 1286 | $2.40 |
| I | Stereo Socket Panel Mount | P 1266 | $2.95 |
| J | Stereo Socket DPST Enclosed Panel Mount | P 1296 | $2.65 |
| K | Stereo Socket DPST Enclosed Metal Panel Mount | P 1298 | $2.75 |

## Audio Adaptors – Phono



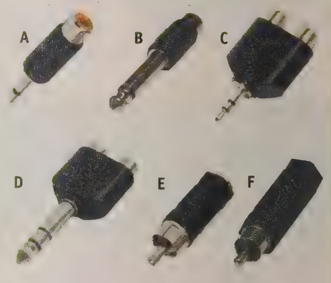
| | | | |
|---|---|---|---|
| A | 2.5mm Mono Plug – 3.5mm Stereo Socket | P 6515 | $4.95 |
| B | 3.5mm Mono Plug – 3.5mm Stereo Socket | P 6600 | $4.95 |
| C | 3.5mm Stereo Plug – 3.5mm Stereo Socket Right Angle | P 6620 | $6.95 |
| D | 3.5mm Mono Plug – 6.5mm Mono Socket | P 6510 | $4.95 |
| E | 3.5mm Mono Plug – 6.5mm Stereo Socket | P 6570 | $4.95 |
| F | 3.5mm Stereo Plug – 6.5mm Stereo Socket | P 6505 | $4.95 |
| G | 3.5mm Stereo Socket – 3.5mm Stereo Socket | P 6602 | $3.95 |

## Audio Adaptors – Phono



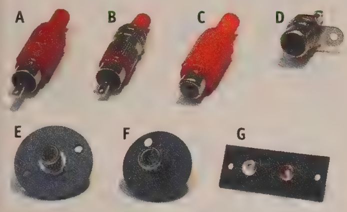
| | | | |
|---|---|---|---|
| A | 6.5mm Mono Plug – 3.5mm Mono Socket | P 6520 | $4.95 |
| B | 6.5mm Mono Plug – 3.5mm Stereo Socket | P 6502 | $4.95 |
| C | 6.5mm Stereo Plug – 3.5mm Stereo Socket | P 6500 | $4.95 |
| D | 6.5mm Stereo Plug R/A – 3.5mm Stereo Socket | P 6625 | $6.95 |
| E | 6.5mm Stereo Socket – 6.5mm Stereo Socket | P 6587 | $3.95 |
| F | 3.5mm Mono Plug – 2x3.5mm Stereo Socket | P 6527 | $4.95 |
| G | 3.5mm Stereo Plug – 2x3.5mm Stereo Socket | P 6525 | $6.95 |
| H | 6.5mm Stereo Plug – 2x6.5mm Stereo Socket | P 6581 | $9.95 |

### AUDIO ADAPTORS – PHONO TO RCA



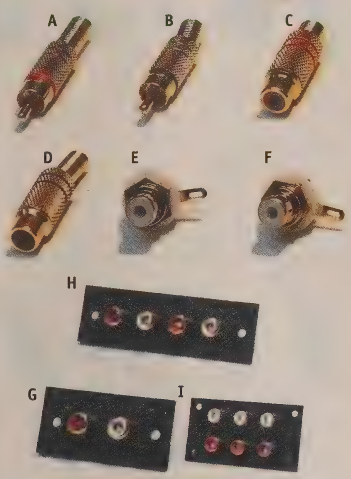
| | | | |
|---|---|---|---|
| A | 3.5mm Mono Plug – RCA Skt | P 6560 | $4.95 |
| B | 6.5mm Mono Plug – RCA Skt | P 6530 | $4.95 |
| C | 3.5mm St Plug – 2 x RCA Skt | P 6572 | $4.95 |
| D | 6.5mm St Plug – 2 x RCA Skt | P 6585 | $4.95 |
| E | RCA Plug – 3.5mm Mono Skt | P 6540 | $4.95 |
| F | RCA Plug – 6.5mm Mono Skt | P 6550 | $4.95 |

## RCA PLUGS & SOCKETS



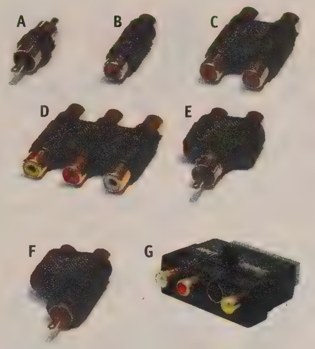
| | | | |
|---|---|---|---|
| A | Plug Red Plastic Hex Shell | P 1420 | $1.25 |
| | Plug White Plastic Hex Shell | P 1421 | $1.25 |
| | Plug Black Plastic Hex Shell | P 1422 | $1.25 |
| | Plug Yellow Plastic Hex Shell | P 1423 | $1.25 |
| B | Plug Metal Red | P 1424 | $2.75 |
| | Plug Metal Black | P 1426 | $2.75 |
| C | Socket Line Red Plastic | P 1410 | $1.15 |
| | Socket Line Black Plastic | P 1412 | $1.15 |
| D | Socket Bulkhead Mount Black | P 1430 | $1.70 |
| | Socket Bulkhead Mount Red | P 1429 | $1.70 |
| | Socket Bulkhead Mount Yellow | P 1428 | $1.70 |
| E | Socket Panel Bakelite Round | P 1440 | $0.90 |
| F | Socket Panel Term Board Round | P 1441 | $1.60 |
| G | Socket 2-Way Nickel 22x56mm | P 1443 | $2.60 |

## RCA GOLD SERIES CONNECTORS



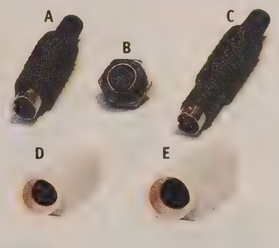
| | | | |
|---|---|---|---|
| A | Plug RCA Metal Red Gold Series | P 1425 | $3.10 |
| B | Plug RCA Metal Black Gold Series | P 1427 | $3.10 |
| C | Skt RCA Line Red Gold Series | P 1411 | $3.10 |
| D | Skt RCA Line Black Gold Series | P 1413 | $3.10 |
| E | Skt RCA Bulkhead Mount Red Gold | P 1431 | $3.60 |
| F | Skt RCA Bulkhead Mount Black Gold | P 1432 | $3.60 |
| G | Socket 2-Way Gold 22x56mm | P 1450 | $4.40 |
| H | Socket 4-Way Gold 24.4x76mm | P 1453 | $5.80 |
| I | Socket 6-Way Gold 50x48mm | P 1454 | $7.20 |

## RCA AUDIO ADAPTORS



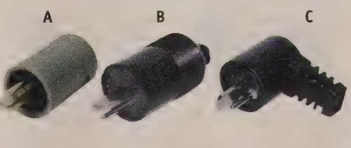
| | | | |
|---|---|---|---|
| A | 1 x RCA Plug – 1 x RCA Plug | P 6614 | $4.95 |
| B | 1 x RCA Socket – 1 x RCA Socket | P 6565 | $4.95 |
| C | 2 x RCA Socket – 2 x RCA Socket | P 6567 | $9.95 |
| D | 3 x RCA Socket – 3 x RCA Socket | P 6568 | $12.95 |
| E | 1 x RCA Plug – 2 x RCA Sockets | P 6610 | $6.95 |
| F | 1 x RCA Plug – 2 x RCA Socket Gold | P 6612 | $9.95 |
| G | 1 x Scart Plug – 3 x RCA & 1 x SVHS Socket | P 6670 | $17.60 |

## MINI DIN CONNECTORS

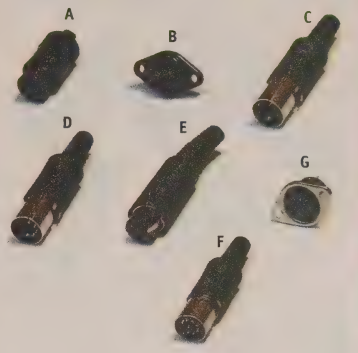


| | | | |
|---|---|---|---|
| A | Plug 4-Pin Mini DIN S-VHS | P 1482 | $3.75 |
| B | Socket 4-Pin Mini DIN Panel Mount | P 1500 | $3.75 |
| C | Plug 6-Pin Mini DIN PS/2 | P 1492 | $3.90 |
| D | Socket 4-Pin Mini DIN Coupler | P 1460 | $7.50 |
| E | Socket 6-Pin Mini DIN Coupler | P 1465 | $7.50 |

## DIN CONNECTORS

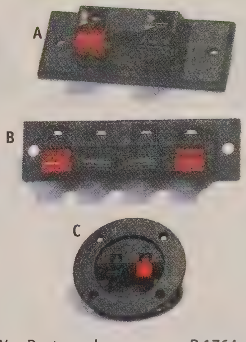


| | | | |
|---|---|---|---|
| A | Plug 2-Pin DIN Screw Terminals | P 9140 | $2.40 |
| B | Plug 2-Pin DIN Line Solder | P 1520 | $2.50 |
| C | Plug 2-Pin DIN Screw Right Ang | P 1521 | $2.50 |



| | | | |
|---|---|---|---|
| A | Socket 2-Pin DIN Line Solder | P 1524 | $1.85 |
| B | Socket 2-Pin DIN Panel Mount Solder | P 1523 | $1.75 |
| C | Plug 3-Pin DIN Line Solder | P 1530 | $1.85 |
| D | Plug 5-Pin DIN Line 180° Solder | P 1550 | $2.25 |
| E | Socket 5-Pin DIN Line 180° Solder | P 1554 | $2.10 |
| F | Plug 8-Pin DIN Line Solder | P 1571 | $2.90 |
| G | Socket 5-Pin DIN Panel 180° Solder | P 1552 | $3.35 |

## SPRING LOADED SPEAKER TERMINALS



| | | | |
|---|---|---|---|
| A | 2-Way Rectangular | P 1764 | $2.95 |
| B | 4-Way Rectangular | P 1765 | $4.95 |
| C | 2-Way Round | P 1763 | $3.40 |

## GOLD MONSTER TWIST CONNECTORS

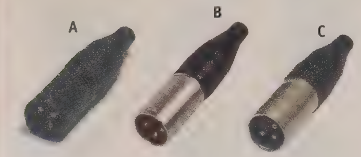
The perfect termination for speaker cable. No soldering required, simply screws on.
P 9250

$9.95 pair

# Plugs & Sockets

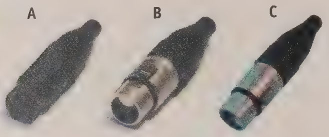
## Amphenol (Cannon) Line Plugs

Designed in Australia



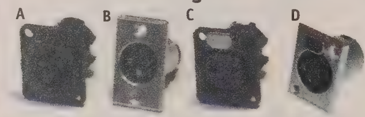
| | | | |
|---|---|---|---|
| A | Plug 3-pin Plastic Shell, Solder | P 1609 | **$4.95** |
| B | Plug 3-pin Metal Body, Solder | P 1623 | **$6.95** |
| C | Plug 3-pin IDC Metal Body | P 1607 | **$7.95** |

## Amphenol (Cannon) Line Sockets



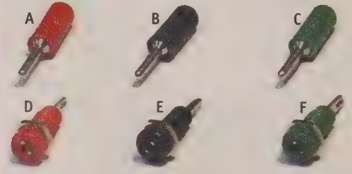
| | | | |
|---|---|---|---|
| A | Socket 3-pin Plastic Shell, Solder | P 1612 | **$4.95** |
| B | Socket 3-pin Metal Body, Solder | P 1621 | **$6.95** |
| C | Socket 3-pin IDC, Metal Body | P 1608 | **$7.95** |

## Panel Mount Plugs & Sockets



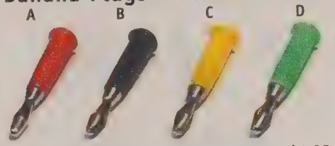
| | | | |
|---|---|---|---|
| A | Plug 3-pin Plastic, Solder | P 1610 | **$4.95** |
| B | Plug 3-pin Metal, Solder | P 1622 | **$9.95** |
| C | Socket 3-pin, Plastic with Latch | P 1611 | **$5.95** |
| D | Socket 3-pin, Metal with Latch | P 1626 | **$9.95** |

## Micro Connectors – 2mm



| | | | |
|---|---|---|---|
| A | Plug Test Pin/Probe Red | P 1752 | **$1.25** |
| B | Plug Test Pin/Probe Black | P 1750 | **$1.25** |
| C | Plug Test Pin/Probe Green | P 1749 | **$1.25** |
| D | Skt Test Pin/Probe Panel Red | P 1758 | **$1.95** |
| E | Skt Test Pin/Probe Panel Black | P 1756 | **$1.95** |
| F | Skt Test Pin/Probe Panel Green | P 1757 | **$1.95** |

## Banana Plugs – Plain



| | | | |
|---|---|---|---|
| A | Red | P 1710 | **$1.25** |
| B | Black | P 1712 | **$1.25** |
| C | Yellow | P 1714 | **$1.25** |
| D | Green | P 1716 | **$1.25** |

## Banana Plugs – Piggy Back Screw Terminal

| | | | |
|---|---|---|---|
| A | Red | P 1740 | **$2.15** |
| B | Black | P 1741 | **$2.15** |
| C | Yellow | P 1742 | **$2.15** |
| D | Green | P 1743 | **$2.15** |

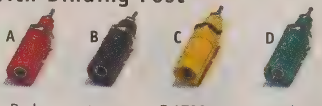
## Banana Plugs – High Quality Piggy Back

| | | | |
|---|---|---|---|
| A | Red | P 1711 | **$2.55** |
| B | Black | P 1713 | **$2.55** |
| C | Yellow | P 1715 | **$2.55** |
| D | Green | P 1717 | **$2.55** |
| E | Blue | P 1718 | **$2.55** |
| F | White | P 1719 | **$2.55** |

## Banana Sockets – Plain

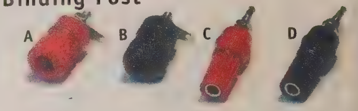
| | | | |
|---|---|---|---|
| A | Red | P 1720 | **$1.20** |
| B | Black | P 1722 | **$1.20** |
| C | Yellow | P 1724 | **$1.20** |
| D | Green | P 1726 | **$1.20** |

## Banana Sockets with Binding Post



| | | | |
|---|---|---|---|
| A | Red | P 1730 | **$2.25** |
| B | Black | P 1732 | **$2.25** |
| C | Yellow | P 1734 | **$2.25** |
| D | Green | P 1736 | **$2.25** |

## Sockets with Large Binding Post

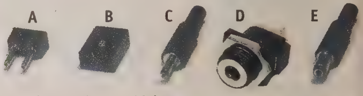


| | | | |
|---|---|---|---|
| A | Red | P 1731 | **$3.25** |
| B | Black | P 1733 | **$3.25** |

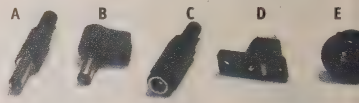
## Sockets with High Quality Binding Posts

| | | | |
|---|---|---|---|
| C | Red | P 1737 | **$2.90** |
| D | Black | P 1738 | **$2.90** |

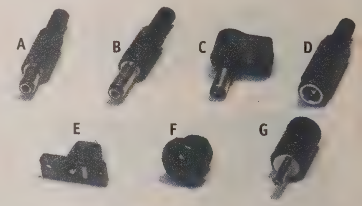
## DC Connectors and Adaptors



| | | | |
|---|---|---|---|
| A | Plug 2-Pin Low Voltage Non Polarised | P 3105 | **$2.10** |
| B | Socket 2-Pin Low Voltage Non-Polarised | P 3106 | **$2.10** |
| C | 1.3mm Plug with Cable Relief | P 1643 | **$2.35** |
| D | 1.3mm Socket, Panel Mount | P 1657 | **$2.90** |
| E | 2.1mm Plug Short Shaft with Cable Relief | P 1641 | **$2.45** |

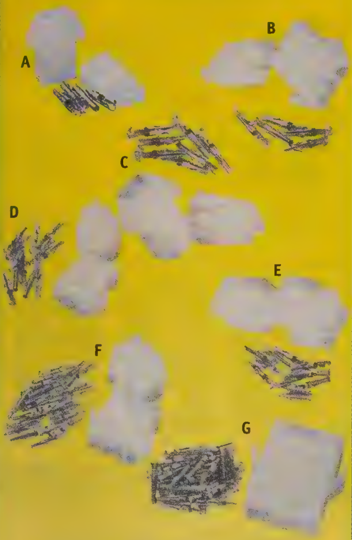


| | | | |
|---|---|---|---|
| A | 2.1mm Plug Long Shaft | P 1642 | **$2.55** |
| B | 2.1mm Plug Right Angle | P 9200 | **$2.65** |
| C | 2.1mm Socket Line with Cable Relief | P 1653 | **$2.65** |
| D | 2.1mm Socket, Panel Mount | P 1661 | **$1.60** |
| E | 2.1mm Socket Round Panel, Switching | P 1648 | **$3.20** |



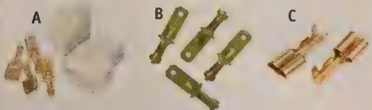
| | | | |
|---|---|---|---|
| A | 2.5mm Plug Short Shaft | P 1645 | **$2.50** |
| B | 2.5mm Plug Long Shaft | P 1646 | **$2.60** |
| C | 2.5mm Plug Right Angle | P 9201 | **$2.70** |
| D | 2.5mm Socket Line Cable Relief | P 1655 | **$2.70** |
| E | 2.5mm Socket Panel Mount | P 1666 | **$1.70** |
| F | 2.5mm Socket Round Panel, Switching | P 1650 | **$3.30** |
| G | 2.1mm Socket – 1.3mm Plug | P 6591 | **$3.50** |

## — NYLON PLUGS & SOCKETS —



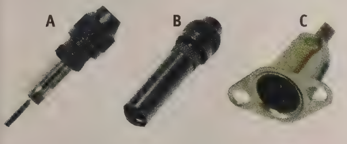
| | Pin No | Max Rating | | |
|---|---|---|---|---|
| A | 2 Way | 300V 15A | P 5102 | $3.50 |
| B | 3 Way | 300V 14A | P 5103 | $3.75 |
| C | 4 Way | 300V 13A | P 5105 | $3.95 |
| D | 6 Way | 300V 12A | P 5106 | $4.95 |
| E | 9 Way | 300V 10A | P 5109 | $5.45 |
| F | 12 Way | 300V 9A | P 5112 | $5.95 |
| G | 15 Way | 300V 8A | P 5115 | $6.25 |
| | Replacement Pins | | P 5100 | $3.95 |

## Nylon "T" Type Connector



| | | | |
|---|---|---|---|
| A | 2 Way 'T' Connector 250V/15A | P 5125 | $2.95 |
| B | Replacement Male Lugs Pk 10 | H 5016 | $4.30 |
| C | Replacement Female Lugs Pk 10 | H 5012 | $4.30 |

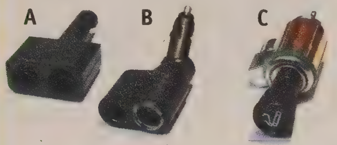
## Automotive Connectors



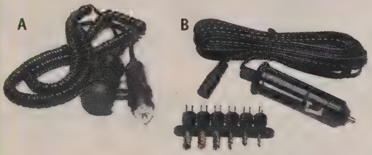
| | | | |
|---|---|---|---|
| A | Car radio antenna plug, solderless | P 2001 | $3.10 |
| B | Car radio antenna socket, solderless | P 2002 | $3.10 |
| C | Car radio antenna socket, panel mount | P 2004 | $0.95 |

## Automotive Connectors

| | | | |
|---|---|---|---|
| A | Plug Car Lighter Accessories Std | P 1675 | $2.85 |
| B | Plug Cig Lighter + 5A Fuse and LED | P 1684 | $4.75 |
| C | Socket Car Lighter External Line | P 1677 | $2.95 |
| D | Socket Car 12V/24V Chassis Mount | P 1690 | $5.30 |

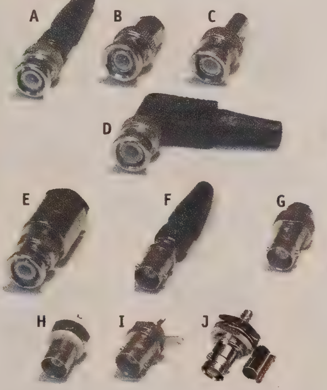


| | | | |
|---|---|---|---|
| A | Socket Twin Lighter (5 Amps/Side) | P 1678 | $10.20 |
| B | Socket Adjustable Angle Plug Acc Socket & Lighter | P 1686 | $13.90 |
| C | Socket Lighter 12V Illum Panel Mount (includes lighter plug) | P 1679 | $8.70 |



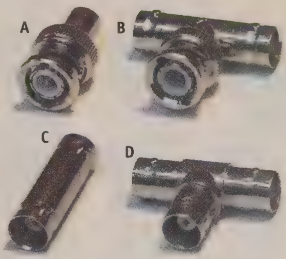
| | | | |
|---|---|---|---|
| A | Lead 2.8m Ext Cig Skt + Cover | P 1681 | $14.40 |
| B | Cig Extension Lead 4m with DC Plug Set | P 1683 | $16.95 |

## BNC Connectors



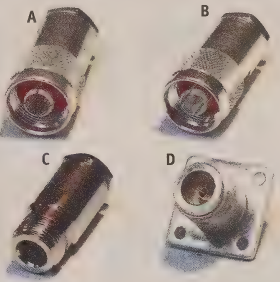
| | | | |
|---|---|---|---|
| A | Plug Line Screw, to suit RG58 | P 2212 | $4.95 |
| B | Plug Line Solder, to suit RG58 | P 2210 | $5.95 |
| C | Plug Line Crimp, to suit RG58 | P 2211 | $5.95 |
| D | Plug Line R/Angle Solderless for RG58 | P 2213 | $7.40 |
| E | Plug Line Solder, to suit RG8/RG213 | P 2260 | $7.40 |
| F | Socket Line Screw | P 2225 | $3.95 |
| G | Socket Line, Solder, RG58/59 | P 2223 | $7.40 |
| H | Socket Panel, Isolated Ground | P 2215 | $4.95 |
| I | Socket Panel, Common Ground | P 2220 | $4.95 |
| J | BNC Socket, Bulkhead | P 2217 | $7.95 |

## BNC Joiners



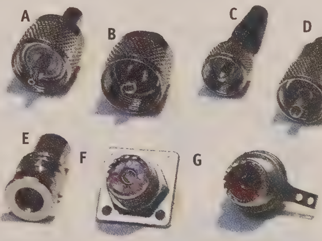
| | | | |
|---|---|---|---|
| A | 50 Ohm Male Terminator | P 2280 | $5.95 |
| B | Adaptor 'T' Male – 2 x Female | P 2277 | $5.95 |
| C | Adaptor 'I' Female – Female | P 2265 | $5.95 |
| D | Adaptor 'T' Female – 2 x Female | P 2275 | $5.95 |

## N Connectors (Silver Plated)



| | | | |
|---|---|---|---|
| A | Line Plug to suit RG213 | P 2400 | $9.95 |
| B | Line Plug to suit RG58 | P 2401 | $9.80 |
| C | Line Socket to suit RG213 | P 2413 | $7.95 |
| D | Panel Mount Socket | P 2410 | $7.45 |

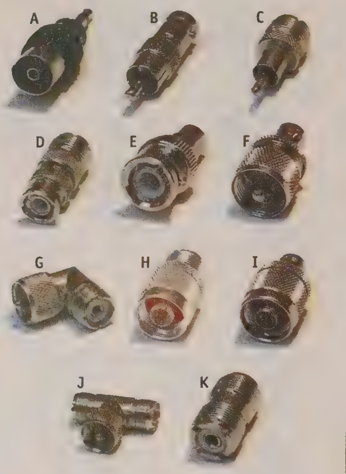
## UHF Coax Connectors



| | | | |
|---|---|---|---|
| A | PL259 Line Plug Crimp, suits RG58 | P 2313 | $4.45 |
| B | PL259 Line Plug Solder, suits RG58/59 cable | P 2311 | $4.95 |
| C | PL259 Line Plug Solderless | P 2315 | $5.95 |
| D | PL259 Line Plug Solder, suits RG8 cable | P 2310 | $5.95 |
| E | Cable Reducing Adaptor for P-2310 | P 2360 | $1.95 |
| F | SO239 Panel Socket, Flange Mount | P 2340 | $4.95 |
| G | SO239 Panel Socket, Hole Mount | P 2342 | $4.95 |

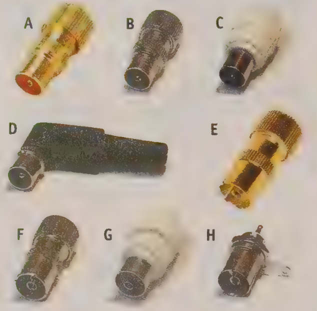
# Plugs & Sockets

## Adaptors – Video/RF



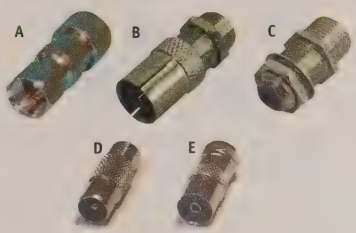
| | | | |
|---|---|---|---|
| A | 3.5mm Mono Plug – 75ohm Coax Skt | P 2035 | $3.75 |
| B | RCA Plug – BNC Socket | P 2255 | $5.95 |
| C | RCA Plug – UHF SO239 Socket | P 1455 | $1.00 |
| D | BNC Plug – UHF SO239 Socket | P 2230 | $5.95 |
| E | BNC Plug – RCA Socket | P 2250 | $5.95 |
| F | UHF PL259 Plug – BNC Socket | P 2240 | $5.95 |
| G | UHF PL259 Plug – SO239 Socket R/Angle | P 2382 | $8.95 |
| H | N Plug – SO239 Socket Silver | P 2415 | $9.95 |
| I | N Plug – BNC Socket Nickel | P 2417 | $9.95 |
| J | Adaptor 'T' PL259 Plug 2 x SO239 Socket | P 2384 | $9.95 |
| K | SO239 Socket – SO239 Socket Joiner | P 2380 | $5.40 |

## 75 OHM CONNECTORS



| | | | |
|---|---|---|---|
| A | Plug 75 Ohm Gold Solderless | P 2018 | $4.20 |
| B | Plug Line Metal Solderless | P 2020 | $2.75 |
| C | Plug Line Plastic Solderless | P 2021 | $2.25 |
| D | Plug R/Angle Solderless | P 2024 | $2.80 |
| E | Socket 75 Ohm Gold Solderless | P 2028 | $4.20 |
| F | Socket Line Metal Solderless | P 2030 | $2.75 |
| G | Socket Line Plastic Solderless | P 2031 | $2.25 |
| H | Socket Panel, Hole Mount | P 2046 | $2.25 |

## F Type Connectors



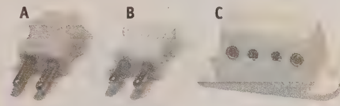
| | | | |
|---|---|---|---|
| A | Plug F type line Screw | P 2090 | $3.45 |
| B | Socket F type panel to Coax Socket | P 2038 | $3.45 |
| C | Socket F type panel to F type socket | P 2039 | $3.45 |
| D | Plug Coax to F Type Socket | P 2036 | $3.50 |
| E | Socket Coax to F type Plug | P 2037 | $4.20 |

## COAX IN-LINE JOINERS

| | | | |
|---|---|---|---|
| A | Adaptor Female – Female | P 2070 | $3.20 |
| B | Adaptor Male – Male | P 2072 | $3.20 |
| C | Cable Joiner Solderless | P 2075 | $3.20 |

## 300 Ohm Connectors

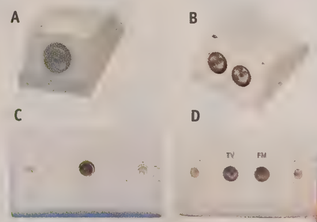
Suit Flat Ribbon cable



| | | | |
|---|---|---|---|
| A | Line Plug Solder/Crimp | P 2082* | $1.00 |
| B | Line Plug Screw Terminals | P 2084 | $3.20 |
| C | Surface Mount Wall Socket | P 2081 | $3.70 |

***Limited Stock**

## Wall Sockets – 75 Ohm

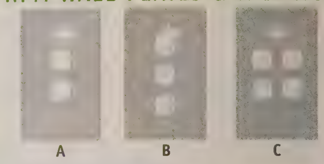


| | | | |
|---|---|---|---|
| A | Surface Mount Skirting Coax Socket | P 2044 | $5.95 |
| B | 75 Ohm Dual TV Outlet Sockets | P 2045 | $7.95 |
| C | Wall Plate with Coax Socket/Splitter | P 2042 | $6.45 |
| D | Wall Plate TV & FM Coax Outlet | P 2043 | $8.95 |

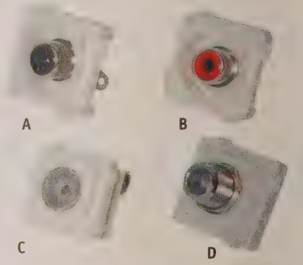
## Wall Plates & Inserts

| | | | |
|---|---|---|---|
| A | Architrave Plate | P 2051 | $3.95 |
| B | Standard Size Plate | P 2053 | $4.95 |
| C | 75 Ohm Insert for P 2051/P 2053 | P 2054 | $3.75 |
| D | Skt 300 Ohm Insert for P 2051/P 2053 | P 2056 | $3.90 |

## HPM WALL PLATES & INSERTS



| | | | |
|---|---|---|---|
| A | HPM Wallplate 2 Socket | P 1800 | $6.95 |
| B | HPM Wallplate 3 Socket | P 1802 | $6.95 |
| C | HPM Wallplate 4 Socket | P 1801 | $6.95 |

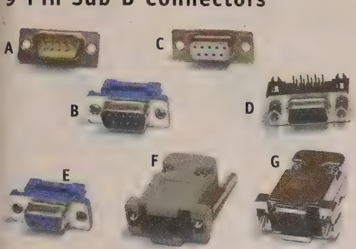


### HPM inserts to suit the above wallplates

| | | | |
|---|---|---|---|
| A | RCA insert – Black | P 1804 | $7.95 |
| B | RCA insert – Red | P 1805 | $7.95 |
| C | PAL TV socket insert | P 1806 | $7.95 |
| D | TV F connector insert | P 1807 | $5.95 |

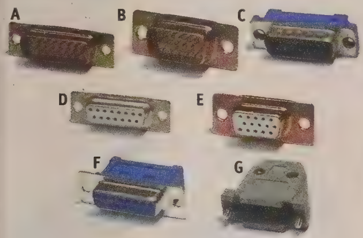
ALARM
PROTECT

## 9 Pin Sub D Connectors



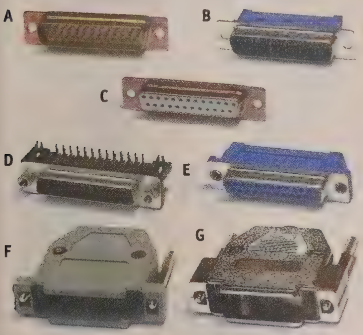
| | | | |
|---|---|---|---|
| A | Plug Solder Tail | P 2684 | $2.25 |
| B | Plug IDC Flat Ribbon | P 2699 | $6.95 |
| C | Socket Solder Tail | P 2685 | $2.25 |
| D | Socket Right Angle PCB Mount | P 2683 | $3.95 |
| E | Socket IDC Flat Ribbon | P 2700 | $6.95 |
| F | Plastic Backshell with Thumbscrews | P 2686 | $3.25 |
| G | Chrome Backshell | P 9892 | $3.95 |

## 15 Pin Sub D Connectors



| | | | |
|---|---|---|---|
| A | Plug Solder Tail | P 2687 | $2.95 |
| B | Plug High Density VGA | P 2710 | $3.95 |
| C | Plug IDC Flat Ribbon | P 2701 | $6.95 |
| D | Socket Solder Tail | P 2688 | $2.95 |
| E | Socket High Density VGA | P 2711 | $3.95 |
| F | Socket IDC Flat Ribbon | P 2702 | $6.95 |
| G | Plastic Backshell | P 2689 | $2.95 |

## 25 Pin Sub D Connectors



| | | | |
|---|---|---|---|
| A | Plug Solder Tail | P 2690 | $4.20 |
| B | Plug IDC Flat Ribbon | P 2693 | $6.95 |
| C | Socket Solder Tail | P 2691 | $4.20 |
| D | Socket IDC Flat Ribbon | P 2694 | $6.95 |
| E | Socket Right Angle PCB Mount | P 2695 | $4.95 |
| F | Plastic Backshell with Thumbscrews | P 2692 | $4.20 |
| G | Chrome Backshell | P 9894 | $4.20 |

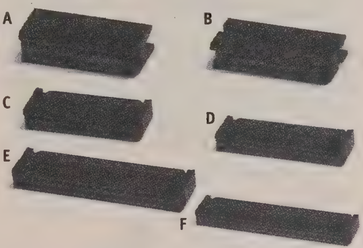
## Sub D Accessories

| | | | |
|---|---|---|---|
| A | Hex Extension Nuts Pk of 2 | P 2724 | $0.60 |
| B | Hex Screw sockets Pk of 2 | P 2725 | $1.25 |

## Computer Power Connectors

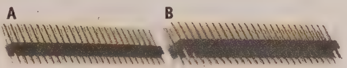
| | | |
|---|---|---|
| Disk Drive Power Plug & Socket | P 5120 | $3.45 |

## IDC Sockets



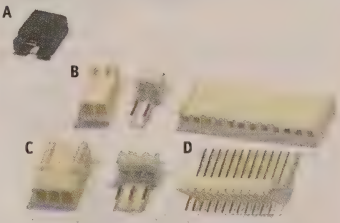
| | | | |
|---|---|---|---|
| A | 16 Way D.I.L. IDC Socket | P 2744 | $3.25 |
| B | 20 Way D.I.L. IDC Socket | P 2746 | $3.25 |
| C | 26 Way D.I.L. IDC Socket | P 2748 | $3.25 |
| D | 34 Way D.I.L. IDC Socket | P 2750 | $3.25 |
| E | 40 Way D.I.L. IDC Socket | P 2752 | $3.95 |
| F | 50 Way D.I.L. IDC Socket | P 2754 | $5.95 |

## Snap Off Pin Headers



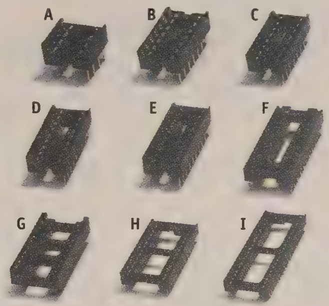
| | | | |
|---|---|---|---|
| A | 25 Way SIL Snap Off | P 2726 | $1.50 |
| B | 50 Way (25x2) DIL Snap Off | P 2728 | $2.95 |

## Locking Pin/Plug Headers



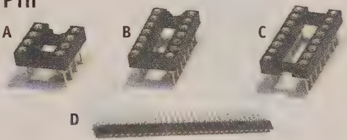
| | | | |
|---|---|---|---|
| A | Jumper Shunts Gold Pack of 5 | P 2730 | $1.50 |
| B | 2-Way SIL Pin Header & Plug | P 2731 | $2.25 |
| C | 3-Way SIL Pin Header & Plug | P 2733 | $2.35 |
| D | 12-Way SIL Pin Header & Plug | P 2735 | $3.95 |

## IC Sockets – Dual Wipe Contacts



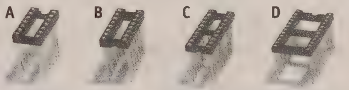
| | | | |
|---|---|---|---|
| A | 8 Pin DIL Socket | P 4080 | $0.55 |
| B | 14 Pin DIL Socket | P 4140 | $0.70 |
| C | 16 Pin DIL Socket | P 4160 | $0.75 |
| D | 18 Pin DIL Socket | P 4180 | $0.80 |
| E | 20 Pin DIL Socket | P 4200 | $0.85 |
| F | 22 Pin DIL Socket | P 4220 | $0.90 |
| G | 24 Pin DIL Socket | P 4240 | $1.00 |
| H | 28 Pin DIL Socket | P 4245 | $1.30 |
| I | 40 Pin DIL Socket | P 4250 | $1.70 |

## IC Sockets – Quality Machined Pin



| | | | |
|---|---|---|---|
| A | 8 Pin Socket Machined | P 4081 | $1.75 |
| B | 14 Pin Socket Machined | P 4141 | $1.95 |
| C | 16 Pin Socket Machined | P 4161 | $2.25 |
| D | 32 Pin Snap Off IC Socket Strip | P 4300 | $5.95 |

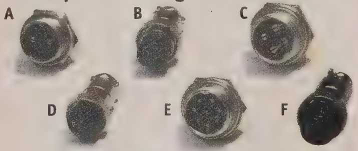
## Wirewrap IC Sockets



| | | | |
|---|---|---|---|
| A | 14 Pin DIL Socket | P 4260 | $1.00 |
| B | 16 Pin DIL Socket | P 4262 | $1.00 |
| C | 20 Pin DIL Socket | P 4264 | $1.00 |
| D | 24 Pin DIL Socket | *P 4268 | $1.00 |

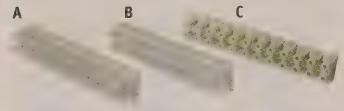
***Limited Stocks**

## Microphone Plugs & Sockets



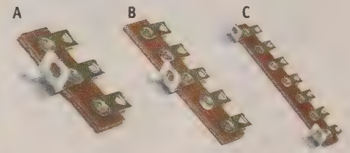
| | | | |
|---|---|---|---|
| A | Plug 2-Pin Panel Mount | P 1820 | $3.95 |
| B | Socket 2-Pin Line | P 1832 | $4.75 |
| C | Plug 4-Pin Panel Mount | P 1824 | $4.45 |
| D | Socket 4-Pin Line | P 1834 | $5.95 |
| E | Plug 8-Pin Panel Mount | P 1826 | $7.95 |
| F | Socket 8-Pin Line | P 1836 | $7.95 |

## Connector Strips



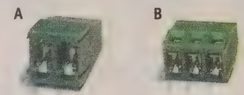
| | | | |
|---|---|---|---|
| **A** | 12-Way 300V 10A Medium | P 4855 | **$3.25** |
| **B** | 12-Way 300V 10A Large | P 4850 | **$3.95** |
| **C** | 12-Way 300V 10A Huge | P 4848 | **$4.60** |

## Tag Strips
"Phenolic Insulation"



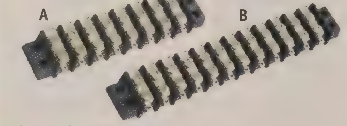
| | | | |
|---|---|---|---|
| **A** | 3-Lug Large | P 4800 | **$1.20** |
| **B** | 5-Lug Large | P 4802 | **$1.95** |
| **C** | 7-Lug Large | P 4804 | **$2.25** |

## PCB Mount Terminal Blocks
300VAC 10A



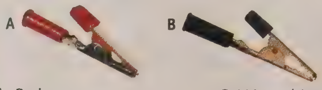
| | | | |
|---|---|---|---|
| **A** | 2-Way 5mm LS | P 4818 | **$1.95** |
| **B** | 3-Way 5mm LS | P 4824 | **$2.25** |

## Barrier Strips
250VAC 15A



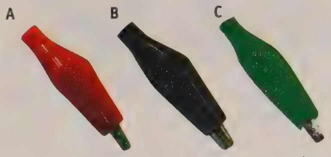
| | | | |
|---|---|---|---|
| **A** | 8-Pole Barrier Strip | P 4812 | **$9.95** |
| **B** | 12-Pole Barrier Strip | P 4814 | **$11.95** |

## Crocodile Clip – 60mm



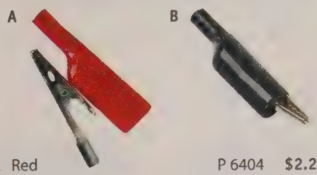
| | | | |
|---|---|---|---|
| A | Red | P 9924 | **$2.55** |
| B | Black | P 9923 | **$2.55** |

## Alligator Clips Miniature Insulated



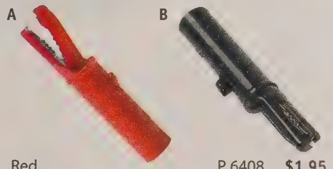
| | | | |
|---|---|---|---|
| **A** | Red | P 6400 | **$1.55** |
| **B** | Black | P 6402 | **$1.55** |
| **C** | Green | P 6403 | **$1.55** |

## Medium Insulated



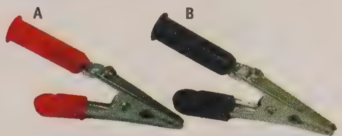
| | | | |
|---|---|---|---|
| **A** | Red | P 6404 | **$2.25** |
| **B** | Black | P 6406 | **$2.25** |

## Alligator Clips with Banana Socket



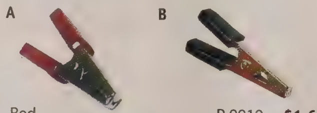
| | | | |
|---|---|---|---|
| **A** | Red | P 6408 | **$1.95** |
| **B** | Black | P 6410 | **$1.95** |

## Alligator Clips with Screw Terminals



| | | | |
|---|---|---|---|
| **A** | Red | P 6411 | **$2.25** |
| **B** | Black | P 6412 | **$2.25** |

## Crocodile Clips – 34mm

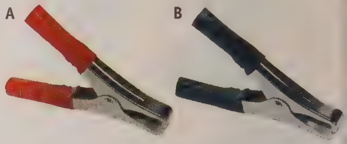


| | | | |
|---|---|---|---|
| **A** | Red | P 9919 | **$1.65** |
| **B** | Black | P 9918 | **$1.65** |

## Battery Clips

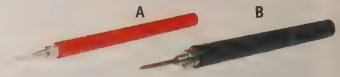
| | | | |
|---|---|---|---|
| **A** | Crocodile Clip Type 20A Red | P 6416 | **$2.95** |
| **B** | Crocodile Clip Type 20A Black | P 6418 | **$2.95** |

| | | | |
|---|---|---|---|
| **A** | Battery Clip Large 30A Red | P 6420 | **$3.75** |
| **B** | Battery Clip Large 30A Black | P 6422 | **$3.75** |

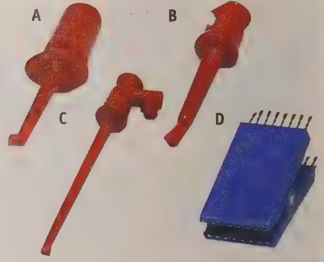


| | | | |
|---|---|---|---|
| **A** | Car Battery Clip 50A Red | P 6424 | **$4.20** |
| **B** | Car Battery Clip 50A Black | P 6426 | **$4.20** |

## Test Clips & Probes



| | | | |
|---|---|---|---|
| **A** | Probe Test Long Solderless Red | P 1754 | **$1.75** |
| **B** | Probe Test Long Solderless Black | P 1755 | **$1.75** |



| | | | |
|---|---|---|---|
| **A** | Miniature IC Test Clip Red | P 6450 | **$1.95** |
| | Miniature IC Test Clip Black | P 6452 | **$1.95** |
| **B** | Medium IC Test/Hook Clip Red | P 6454 | **$2.50** |
| | Medium IC Test/Hook Clip Black | P 6456 | **$2.50** |
| **C** | Large IC Test/Hook Clip Red | P 6458 | **$4.95** |
| | Large IC Test/Hook Clip Black | P 6460 | **$4.95** |
| **D** | IC Test Clip 16 Pin Peg Style | P 6470 | **$9.95** |

**EVEREADY.**

## Flange Fit Torch Bulbs

Standard flange fit heavy duty torch bulbs.

| | |
|---|---|
| 2.4 Volt @ 0.5A | S 3967 |
| 3.6 Volt @ 0.5A | S 3966 |
| 4.8 Volt @ 0.7A | S 3965 |
| 6.0 Volt @ 0.5A | S 3984 |

$3.51 ea

**EVEREADY.**

## Edison Torch Bulbs

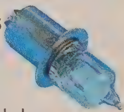
Edison screw-type heavy duty torch bulbs.

| | |
|---|---|
| 1.2V @ 0.22A | S 5081 |
| 2.3V @ 0.27A | S 3948 |
| 2.5V @ 0.3A | S 3947 |
| 3.7V @ 0.3A | S 3944 |
| 6.2V @ 0.3A | S 3946 |

$2.86 ea

**EVEREADY.**

## Halogen Torch Bulbs

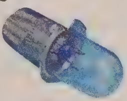


Standard flange fit Halogen torch bulbs. Note: Halogen Bulbs operate at higher temperatures and should only be used in torches designed for Halogen bulbs!

| | | |
|---|---|---|
| 2.8V @ 0.85A | S 3950 | $10.60 |
| 4.0V @ 0.85A | S 3955 | $10.60 |
| 5.5V @ 1.0A | S 3960 | $12.95 |

**EVEREADY.**

## Krypton Torch Bulbs



Standard flange fit Krypton torch bulbs. Higher performance, extra bright Krypton bulbs to suit most torches, lanterns, etc. Standard flange fit.

| | |
|---|---|
| 2.2V @ 0.47A | S 3982 |
| 2.4V @ 0.7A | S 3961 |
| 3.6V @ 0.75A | S 3962 |
| 4.8V @ 0.75A | S 3963 |

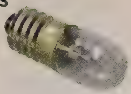
$3.70 ea

## LES Tubular Bulbs

12V 50mA Long Version for P 8100 and P 8102 bezels.
P 8155 $1.25

12V 50mA Short Version for P 8050, 52, 54 and 56 bezels.
P 8159 $1.25

## MES Tubular Bulbs



| | | |
|---|---|---|
| 1.5V | 300mA | P 8147 |
| 6.3V | 300mA | P 8150 |
| 12V | 100mA | P 8153 |
| 12V | 300mA | P 8152 |

$1.25 ea

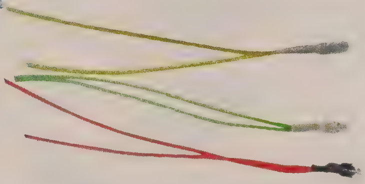
## MBC Tubular Bulbs

| | | |
|---|---|---|
| 1.5V | 300mA | P 8183 |
| 6.3V | 300mA | P 8185 |
| 12V | 300mA | P 8176 |
| 24V | 50mA | P 8177 |

$1.25 ea

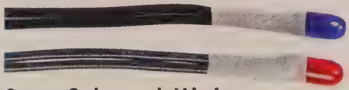
## 5mm "Grain of Wheat" Bulb

12V 50mA with Pigtail Leads.
P 8140 $1.35 ea



## 3mm Mini Pilot Bulbs – 50mA

| | | |
|---|---|---|
| 1.5V Red Leads | P 8132 | $1.25 |
| 3.0V Green Leads | P 8133 | $1.25 |
| 12V Yellow Leads | P 8130 | $1.95 |

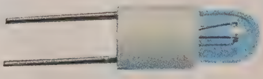


## 3mm Coloured Mini Pilot Bulbs

1.5V 50mA

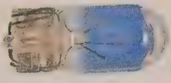
| | |
|---|---|
| Red Bulb | P 8120 |
| Green Bulb | P 8121 |
| Blue Bulb | P 8122 |
| Yellow Bulb | P 8123 |
| Orange Bulb | P 8124 |

$1.25 ea



## Mini Bi-Pin Bulb

12V 60mA, suits P 7580 – P 7585 Miyama Illuminated Push Button Switches.
P 8158 $3.50

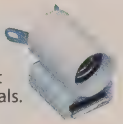


## Wedge Bulb

12V-14V 80mA suits P 7591 and P 7593 Illuminated Switches and P 8170 Lamp Holder.
P 8157 $1.95

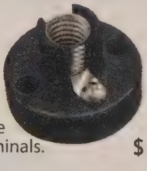
## BULB HOLDERS

## MES Bulb Sockets

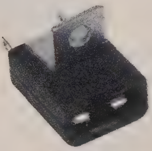


With Slot Mount & Solder Terminals.
P 8162 $1.95

## MES Bulb Sockets

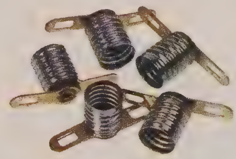


With Round flange Base & Screw Terminals.
P 8161 $2.50



## Wedge Bulb Sockets

Wedge with right angle bracket and mini solder tags. Suit P 8157 Bulbs.
P 8170 $1.10



## LES Bulb Sockets

Pack of 5 solder tag sockets to suit lilliput edison screw globes.
P 8172 $4.95

## MBC Bulb Sockets

MBC with right angle bracket and mini solder tags.
P 8171 $1.75

## NEON BULBS

## Neon Bulbs

Striking Voltage: 70-90V @ 600µA.
Use 240k 1/4W series resistor for 240VAC operation.
P 8160 $1.25

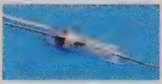
## XENON FLASHTUBES

White-light flash tubes for photoflash, timing lights, security beacons, industrial and disco strobe applications.

### U-Type 36mm Length

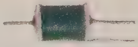
200-400V (300V Nom)
60 Joules.
P 8164
$5 75

### Straight Type 32mm Length



200-400V (300V Nom)
0.1 Joules.
P 8166
$5 45

### Flashtube Trigger Transformer

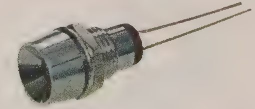


250V Primary
6kV Secondary.
M 0104
$3 50

## LED BEZELS

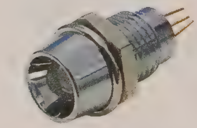
### LED Bezel – Low Current

Polarised Terminals
Rating: 2VDC 20mA
Mounting Hole: 8mm
Clearance: 16mm
Red P 8104
Green P 8106
$2 50 ea



### LED Bezel – High Brightness

Polarised Terminals
Lens: Water Clear
Emitted Light: Green
Luminous Intensity: 300mcd
Rating: 2.4VDC 20mA, 100mW
Mounting Hole: 8mm
Clearance: 15mm
P 8107
$3 40 ea



### LED Bezel – Dual Colour

Polarised Terminals
Lens: Milky White
Emitted Light: Red & Green
Rating: 2.8VDC 20mA
Mounting Hole: 7mm
Clearance: 15mm
Centre Terminal = Common Cathode
P 8108
$5 95 ea

## 12V BEZELS

### Sub-Miniature 12V

Supplied with P 8155
LES Filament Globe
Mounting Hole: 11mm
Clearance: 24mm
Red P 8100
Green P 8102
$3 90 ea

### Miniature 12V

Supplied with P 8159
LES 12V Filament Globe
Mounting Hole: 11mm
Clearance: 21mm
Red P 8050
Green P 8052
Amber P 8054
Blue P 8056
$3 20 ea

## NEON BEZELS

### Sub-Miniature

Emitted Light: Red
Striking Voltage: 90V
Mounting Hole: 7mm
Clearance: 16mm
*Use 270k 1/4W Series Resistor for 240VAC
P 8112
$3 50 ea
***Limited Stocks**

### Miniature 240VAC

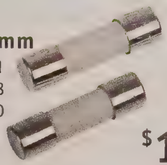
With in-built series resistor for 240VAC
Emitted Light: Red
Mounting Hole: 4.3mm
Clearance: 49mm
P 8114
$3 95 ea

### Medium Size 240V Neon Bezels

With in-built series resistor for 240VAC
Mounting Hole: 9.7mm
Clearance: 35mm
Connection: Solder Tag
Green P 8117
$3 95 ea
***Limited Stocks**

## FUSES – CERAMIC

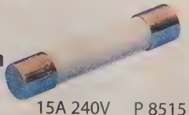
### M205 20 x 5mm



| | |
|---|---|
| 630mA | P 8401 |
| 8A | P 8408 |
| 10A | P 8410 |

$1 35 ea

### 3AG 32 x 6mm

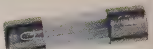


| | | | |
|---|---|---|---|
| 7A 240V | P 8507 | | |
| 8A 240V | P 8508 | 15A 240V | P 8515 |
| 10A 240V | P 8510 | 20A 240V | P 8520 |

$1 95 ea

## FUSES – FAST BLOW

### M205 20 x 5mm



| | | | |
|---|---|---|---|
| 100mA | P 9340 | | |
| 125mA | P 7939 | | |
| 200mA | P 7929 | 1.6A | P 9344 |
| 250mA | P 7930 | 2A | P 7936 |
| 315mA | P 7931 | 2.5A | P 7937 |
| 400mA | P 9342 | 3A | P 9346 |
| 500mA | P 7932 | 3.15A | P 9347 |
| 750mA | P 7933 | 4A | P 9348 |
| 1 Amp | P 7934 | 5A | P 7938 |
| 1.25A | P 7935 | 10A | P 9354 |

55¢ ea

### 3AG 32 x 6mm

| | | | |
|---|---|---|---|
| 100mA | P 7950 | 3A | P 7966 |
| 150mA | P 7952 | 5A | P 7968 |
| 250mA | P 7954 | 7.5A | P 7970 |
| 315mA | P 7955 | 10A | P 7972 |
| 350mA | P 7956 | 15A | P 7974 |
| 500mA | P 7958 | 20A | P 7976 |
| 1 Amp | P 7960 | 25A | P 7978 |
| 1.5A | P 7962 | 30A | P 7980 |
| 2A | P 7964 | 35A | P 7982 |
| 2.5A | P 7965 | | |

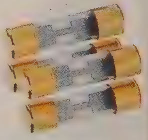
45¢ ea

### 5AG 32V 38 x 10mm

| | | | |
|---|---|---|---|
| 10A | P 7886 | | |
| 15A | P 7888 | 25A | P 7892 |

$1 95 ea

### 5AG Gold Fuses



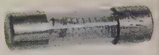
2 Per Pack

| | |
|---|---|
| 20A Fuses | D 6132 |
| 30A Fuses | D 6134 |
| 40A Fuses | D 6136 |
| 50A Fuses | D 6137 |
| 60A Fuses | D 6138 |

$4 75 pk

## FUSES – SLOW BLOW

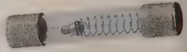
### M205 20 x 5mm



| | | | |
|---|---|---|---|
| 100mA | P 7919 | 1.6A | P 7927 |
| 250mA | P 7920 | 2 Amp | P 7928 |
| 315mA | P 7922 | 3.15A | P 9316 |
| 400mA | P 7923 | 4 Amp | P 9318 |
| 500mA | P 7924 | 5A | P 7925 |
| | | 1 Amp | P 7926 |

$1 95 ea

### 3AG 32 x 6mm

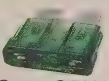


| | | | |
|---|---|---|---|
| 250mA | P 7940 | | |
| 500mA | P 7942 | | |
| 630mA | P 7941 | 2.5A | P 7943 |
| 1A | P 7944 | 3A | P 7947 |
| 1.5A | P 7945 | 5A | P 7948 |
| 2A | P 7946 | 8A | P 7949 |

$1 95 ea

## AUTOMOTIVE FUSES

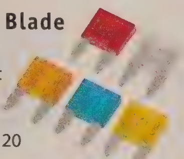
### ATC Car Blade Fuses



| | | | |
|---|---|---|---|
| 5A – Tan | P 7988 | | |
| 7.5A – Brown | P 7990 | 30A – Green | P 7999 |
| 10A – Red | P 7992 | 35A – Purple | P 7997 |
| 15A – Blue | P 7994 | 40A – Orange | P 8001 |
| 20A – Yellow | P 7996 | | |
| 25A – Clear | P 7998 | | |

95¢ea

### Assorted Mini Blade Fuse Pack



A handy assortment of fuses used in modern cars. Consists of 5, 10, 15, 20 and 25 Amp fuses
P 9362

$3 95 pk

## THERMAL FUSES

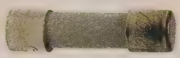
### Thermal Fuses

**Made in Japan**
10A 240V
96°C P 7984
139°C P 7986

$3 50 ea

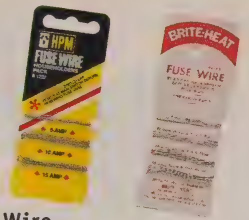
## FLUKE FUSES

### FLUKE Fuses



Replacement fuses for your quality FLUKE meters.

| Suits | Cat No | Price |
|---|---|---|
| Fluke 73, 75, 77 & 87 (KTK 15) 15A/600V | P 7884 | $24.95 |
| Fluke 75/77 Series I (FSF3) 3A/600V | P 7883 | $9.40 |
| Fluke 87 (BBS-1) 1A/600V | P 7882 | $9.95 |
| Fluke 75 & 77 (GDA-630) 630mA/250V | P 7880 | $4.95 |
| Fluke 19 (943-118) 11A/1000VAC | P 7885 | $24.95 |



### Fuse Wire

Handy packs of fuse wire for use in mains fuse boxes.

| | |
|---|---|
| 5A, 10A, 15A | 8A, 16A, 20A, 30A |
| H 3182 | W 3180 |

$2 50 ea

## FUSEHOLDERS

Panel Mount 10A
Insulation Breakdown: 5MOhm/min
Mounting Hole: 13.5mm

### Quick Clip/Release Holder

3AG (32 x 6mm)
Face Size: 17mm Square
P 7900

$3 75

### Screw Cap Holder

M-205 Type
P 7918

$2 35

3AG Type
P 7902

$2 95

### Fingerproof Safety Holder

Don't be Fooled by Imitations!

M-205 (20 x 5mm) P 7914 $4.95
3AG (32 x 6mm) P 7916 $5.95

## INLINE FUSEHOLDERS

### 3AG Light Duty

Non-UV Polyethylene
12 VDC 3A With 600mm Leads
P 7912

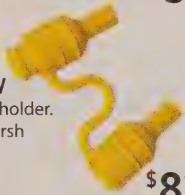
$2 10

### 3AG Heavy Duty

12VDC 20A,
100mm Leads
P 7913

$3 10

### Waterproof High Quality



32VDC 30A 3AG holder. Ideal for most harsh environments.
P 7917

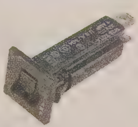
$8 95

### ATC Blade Holder

12VDC 30A
With Protection Cap and 300mm #12 Leads
P 7905

$2 95

## MINI CIRCUIT BREAKERS



Quality made by Potter & Brumfield(US). Electrical Authority Approved Rating: 32VDC/250VAC. Mounting Hole: 16mm x 1.574mm (Thick). Snap Lock Fitting, Spade Terminals. Soldering not recommended.

| | | | |
|---|---|---|---|
| 2A | P 8202 | 7A | P 8207 |
| 3A | P 8203 | 10A | P 8210 |
| 5A | P 8205 | 15A | P 8215 |

$10 30 ea

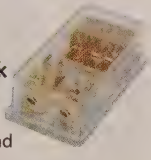
## GOLD FUSEHOLDERS & DISTRIBUTION BLOCKS

### Gold Inline Fuseholder

Heavy duty 5AG fuse holder with low resistance gold-plated contacts and dual gasket seals for the fuse area. Suits both 8GA and 4GA cables and has in-built mounting bracket for easy installation.
D 6118

$12 95

### Fused Power Distribution Block



Gold-plated heavy duty power distribution block with three 4GA inputs and two 8GA fused outlets. Fuseholders use 5AG size fuses (not supplied). Size is 101 x 53 x 33mm (LWH) including plate and cover.
D 6122

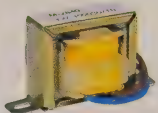
$24 95

### Fused Power Distribution Block

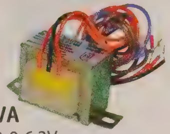
Gold-plated heavy duty power distribution block with three 4GA inputs and four 8GA fused outlets. Fuseholders use 5AG size fuses (not supplied). Size is 104 x 77 x 33mm (LWH) including plate and cover.
D 6124

$34 95

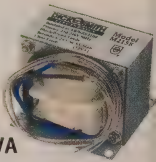
## Transformers



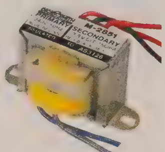
### 9V CT @ 1.4VA
Secondary output: 4.5-0-4.5V
Secondary current: 150mA
Dimensions: 31(h) x 37(w) x 32(d) mm
Terminations: Flying leads
M 2840
$10.50



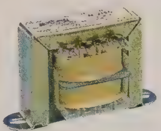
### 6.3-0-6.3V @ 500mA, 6.3VA
Secondary output: 6.3-0-6.3V
Secondary current: 500mA
Dimensions: 35(h) x 55(w*) x 41 (d) mm
*Mounting hole width
Terminations: Flying leads
M 2853
$12.95



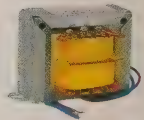
### 0-24V @ 3A, 72VA
Secondary output: 0-24V
Secondary current: 3A
Dimensions: 65(h) x 77(w) x 74(d) mm
Terminations: Solder lugs
M 2158
$27.95



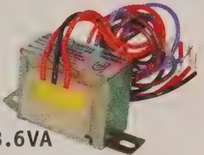
### 12.6V CT @ 1.9V
Secondary output: 6.3-0-6.3V
Secondary current: 150mA
Dimensions: 35(h) x 43(w) x 36(d) mm
Terminations: Flying leads
M 2851
$11.40



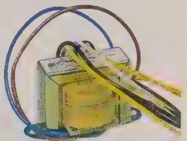
### 6.3-15V @ 15VA
Secondary output: 0-6.3-7.5-8.5-9.5-12.6 and 0-15V
Secondary current: 1A
Dimensions: 50(h) x 61(w) x 53(d) mm
Terminations: Flying leads
M 2155
$19.30



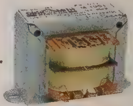
### 9-24V @ 60VA
Secondary output: 2 x 0-9-12V
Secondary current: 9V 6.6A, 12V 5A, 15V 4A, 18V 3.3A, 21V 2.9A, 24V 2.5A
Dimensions: 66(h) x 79(w) x 69(d) mm
Terminations: Solder lugs
M 2165
$26



### 12-0-12V @ 150mA, 3.6VA
Secondary output: 12-0-12V
Secondary current: 150mA
Dimensions: 35(h) x 55(w*) x 41(d) mm
*Mounting hole width
Terminations: Flying leads
M 2854
$11.40

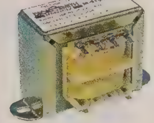


### 30V CT/15V CT @ 15VA
Secondary output: 15-7.5-0-7.5-15V
Secondary current: 500mA
Dimensions: 50(h) x 61(w) x 45(d) mm
Terminations: Flying leads
M 2860
$19.95



### Transformer Multitap 12-30V @ 2A
Secondary output: 0-12-15-17.5-20-24-27.5 and 0-30V
Secondary current: 2A
Dimensions: 66(h) x 79(w) x 69(d) mm
Terminations: Solder lugs
M 1991
$33.50

### 30V CT/36V CT @ 15VA
Secondary output: 18-15-0-15-18V
Secondary current: 140mA
Dimensions: 35(h) x 43(w) x 42(d) mm
Terminations: Flying leads
M 2856
$11.95

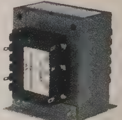


### 6.3-15V @ 30VA
Secondary output: 0-6.3-7.5-8.5-9.5-12.6 and 15V
Secondary current: 2A
Dimensions: 60(h) x 70(w) x 68(d) mm
Terminations: Solder lugs
M 2156
$23.30

### 7.5-42.5V @ 60VA
Secondary output: 0-7.5-10-17.5
Output windings: 0-10-17.5V @ 1.4A, 0-17.5V @ 1.4A, 0-7.5V @ 1.4A
Dimensions: 66(h) x 79(w) x 69(d) mm
Terminations: Solder lugs
M 6676
$34.95

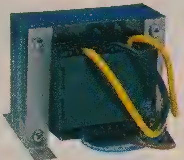
### 0-12-15-18 @ 1A, 18VA
Secondary output: 0-12-15-18V
Secondary current: 1A
Dimensions: 51(h) x 61(w) x 44(d) mm
Terminations: Solder lugs
M 2154
$13.50

### 12-30V @ 30VA
Secondary output: 0-12-15-17.5-20-24-27.5 and 0-30V
Secondary current: 1A
Dimensions: 60(h) x 70(w) x 68(d) mm
Terminations: Solder lugs
M 6672
$26.95



### 50V @ 60VA
Secondary output: 25-0-25V
Secondary current: 1.2A
Dimensions: 66(h) x 79(w) x 69(d) mm
Terminations: Solder lugs
M 6680
$49.95

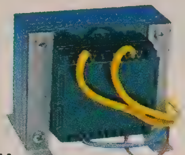
## GENERAL PURPOSE AC TRANSFORMERS



**56V CT @ 120VA**

Secondary output: 28-0-28V
Secondary current: 2A
Dimensions: 80(h) x 96(w) x 74(d)mm
Terminations: Flying leads
M 0144

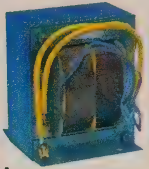
**$59.95**



**18V @ 120VA**

Secondary output: 0-18V
Secondary current: 6A
Dimensions: 80(h) x 96(w) x 74(d)mm
Terminations: Flying leads
M 2000

**$59.95**

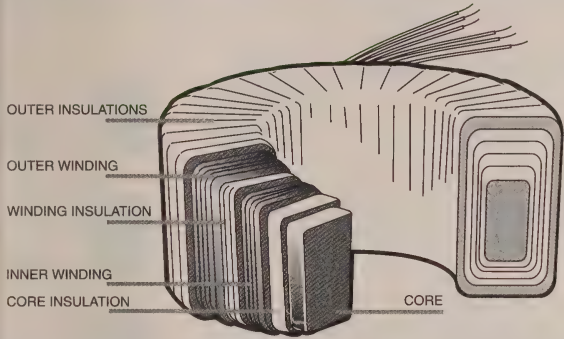


**18V @ 300VA**

Secondary output: 0-18V
Secondary current: 16.7A
Dimensions: 114(h) x 95(w) x 95(d)mm
Terminations: Flying leads
M 2010

**$99.95**

## TOROIDAL TRANSFORMERS



The Toroidal transformer is now accepted as the standard in the industry, replacing the laminated type. As toroidal transformers offer the advantages in size, weight and lower radiated field.

- Each toroidal is supplied with 2 x Rubber Spacing Washers, 1 x Steel Mounting Bolt and 1 x Nut.
- Smaller size and weight to meet slimline requirements.
- High efficiency enabling conservative rating whilst maintaining size advantages.
- Simple, quick, single bolt mounting

### 160VA Toroidal

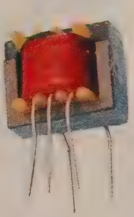
| Cat No. | Volts | Current | Termination | Dimensions | Weight |
|---|---|---|---|---|---|
| M 1605 | 25/25 | 3A | Fly leads | 112 x 40mm | 1.75Kg |

**$81.80**

### 300VA Toroidal

| Cat No. | Volts | Current | Termination | Dimensions | Weight | Price |
|---|---|---|---|---|---|---|
| M 1610 | 28/28 | 5.3A | Fly leads | 115 x 58mm | 2.4Kg | $88 |
| M 1615 | 40/40 | 3.75A | Fly leads | 115 x 58mm | 2.4Kg | $95 |
| M 1620 | 50/50 | 3A | Fly leads | 115 x 58mm | 2.4Kg | $95 |

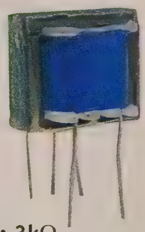
## AUDIO & TRIGGER TRANSFORMERS



**1kΩ CT: 8kΩ**

Primary: 1kΩ
Secondary: 8kΩ
Use: 350mW output coupling
Size: 11(h) x 15(w) x 14(d)mm
Construction: Iron core
M 0216

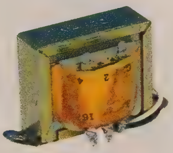
**$4.20**



**3kΩ: 3kΩ**

Primary: 3kΩ
Secondary: 3kΩ
Use: Coupling
Size: 15(h) x 17(w) x 15(d)mm
Construction: Iron core
M 0222

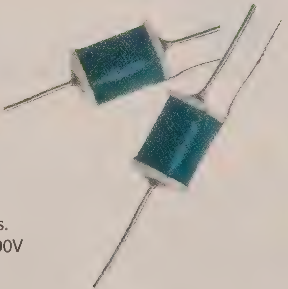
**$4.90**



**Audio Line Transformer**

Suits all speaker impedances. Multi-tapped for use with 100V or 70V lines.
Primary: 2.5kΩ, 5kΩ
Output windings: 2, 4, 8, 16Ω
Dimensions: 35(h) x 62(w) x 67(d)mm
Rated: 4W RMS
M 1100

**$10.70**



**Trigger Transformer**

This 240V/6kV transformer suits Xenon Flashtubes.
M 0104

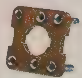
**$3.50 ea**

# Ferrites & Chokes

## COIL FORMERS & ACCESSORIES

**Former**
Material: Phenolic Outside Diameter: 4.83mm
Winding Height: 14mm (Max)
Threading: Suits 4mm Ferrite Cores.
R 5020

$1.95



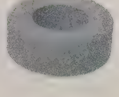
**6-Pin Former Base**
R 5010

$1.65

**Tinned Copper Screening CAN**
12.7mm(w) x 13.4(d) x 17.8(h)mm.
R 5000

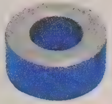
95¢

## TOROIDS



**Iron Powder Toroid**
Enamel Coated, AL = 45nH (approx) 14.8mm (OD) x 8mm (ID) x 6.35mm (H). Suit EMI Suppression as choke in TRIAC circuits.
R 5410

$2.55



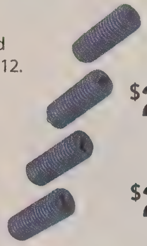
**Miniature Toroid**
F43 Material – For RF suppression (30MHz – 400MHz) in Amplifiers, etc. 9.5mm (OD) x 5mm (ID) x 5mm (L), AL=520nH.
R 5400

80¢ ea

**Toroidal Balun Kit**
Make your own 3-30MHz balun or impedance matching transformer. Can also be used for RFI suppression by winding speaker leads through the core. Kit contains 2″ toroid and insulated copper wire.
D 5350

$25.70

## FERRITE CORES



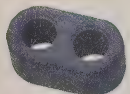
10mm(long) x 4mm (diam) • 0.5mm thread pitch • F29 suits 10-220MHz operation • ui=12.
Pack of 4.
R 5030

$2.95

F16 suits 0.5-15MHz operation • ui=125.
Pack of 4.
R 5025

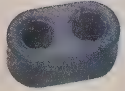
$2.95

## BALUN FORMERS



**F14 Ferrites**
1050/1/F14. 13.5mm x 13.2 mm x 7.4mm.
In pack of two.
R 5440

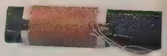
$2.95



**F29 Ferrites**
1050/2/F29. 6.5mm x 13.2mm x 7.4mm.
In pack of two.
R 5445

$2.95

## AERIAL RODS



**Aerial Rod with Coil**
Ferrite Rod with prewound B/C coil. Used in pocket radios, Funway 1&2 etc.
R 5100

$3.40

**Aerial Ferrite Rod 180 x 10mm**
Used for AM/FM aerial rod and radio frequency interference (RFI) suppression.
180mm (L) x 10mm diameter.
R 5106

$3.40

**Aerial Ferrite Rod 100 x 10mm**
Used for AM/FM aerial rod and radio frequency interference (RFI) suppression. 100mm (L) x 10mm diameter.
R 5107

$1.95

## FERRITE BEADS

Normally threaded on wire leads to reduce EMI radiation and spurious effects from undesired RF pickups. Usable also as cores for pulse and wideband transformers.

**Single Hole, Low Frequency**
F8 Material – For LF Suppression. 4mm (OD) x 2mm (ID) x 5mm Holes (L)
R 5420

$1.15

**Single Hole, High Frequency**
F29 Material – For HF/VHF Suppression.
4mm (OD) x 2mm (ID) x 5mm (L)
R 5425

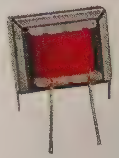
$1.25

**6-Hole Bead**
F14 Material – For HF/VHF Suppression.
6mm (OD) 0.9mm Holes (x 6) x 10mm (L).
R 5430

$1.65

**Slug Tuned IF/OSC Coil Pack**
Set comprises of 1st, 2nd & 3rd 455kHz standard miniature IF transformers and b/c oscillator coil.
R 5040

$4.95



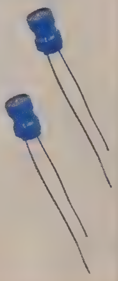
**DC Power Choke**
Filter used for reducing noise and voltage spikes in electronic equipment.
Inductance @ 1A: 1mH (approx)
Max Current: 4 Amps(Cont.)
Dimensions: 20 x 16 x 16mm
R 5300

$6.95

**RF Chokes**

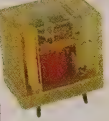
| Value | (mA) | Cat No | Value | (mA) | Cat No |
|---|---|---|---|---|---|
| 1.0 uH | 300 | R 5200 | 82 uH | 200 | R 5226 |
| 1.5 uH | 300 | R 5202 | 100 uH | 200 | R 5228 |
| 2.2 uH | 300 | R 5204 | 150 uH | 100 | R 5230 |
| 3.3 uH | 300 | R 5206 | 220 uH | 100 | R 5232 |
| 4.7 uH | 300 | R 5208 | 330 uH | 50 | R 5234 |
| 6.8 uH | 300 | R 5210 | 560 uH | 50 | R 5238 |
| 8.2 uH | 300 | R 5212 | 820 uH | 50 | R 5240 |
| 15 uH | 200 | R 5216 | 2.5 mH | 33 | R 5246 |
| 22 uH | 200 | R 5218 | | | |
| 33 uH | 200 | R 5220 | | | |
| 68 uH | 200 | R 5224 | | | |

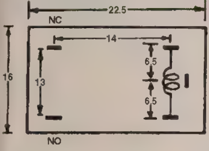
Limited Stock



95¢ ea

## SPDT

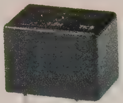


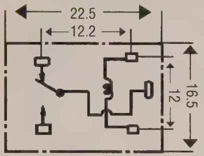


### SPDT 8V DC - 12V DC Relay

| | |
|---|---|
| Contact Current (max): | 3A @ 120V AC |
| Contact Voltage (max): | 250V AC |
| Coil Voltage (nom): | 9V DC |
| Coil Resistance: | 225 ohms |
| Operating Time (typical): | 15ms |
| Release Time (typical): | 10ms. |

P 8008 $\$4^{95}$

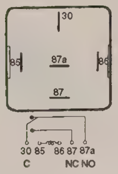


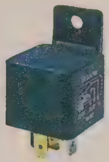


### SPDT 12V DC Relay

| | |
|---|---|
| Contact Current (max): | 10A |
| Contact Voltage (max): | 250V AC, 30V DC |
| Coil Voltage (nom): | 12V DC |
| Coil Resistance: | 400 ohms |
| Operating Time (typical): | 10ms. |

P 8017 $\$5^{95}$



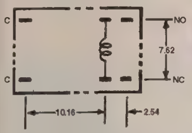


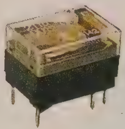
### SPDT 12V DC Horn Relay

Ideal for car/boat horn circuits, alarms, ignition cut-outs or any application where high currents have to be switched.

- Contact Current: 20A DC
- Contact Voltage: 12V DC
- Coil Voltage: 12V DC
- Termination: Spade lugs
- Overall size: 30(l) x 30(w) x 26(h)mm

P 8035 $\$7^{60}$



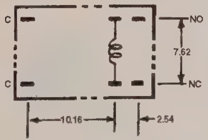


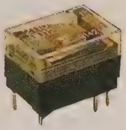
### SPDT 5V DC Relay

High sensitivity type. Gold-overlay silver contacts.

| | |
|---|---|
| Contact Rating: | 28V DC @ 1A,<br>120V AC @ 0.5A |
| Contact Switching Current: | 2A |
| Contact Switching Voltage: | 150V DC |
| Coil Resistance: | 120 ohms @42mA, 5V DC |
| Operating Time (typical): | 5ms |
| Release Time (typical): | 5ms. |
| Overall Size: | 15.6(l) x 10.6(w) x 10.5(h)mm. |

P 8005 $\$8^{60}$



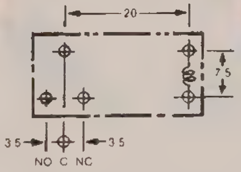


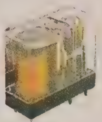
### SPDT 12V DC Relay

High sensitivity type. Gold-overlay silver contacts.

| | |
|---|---|
| Contact Rating: | 28V DC @ 1A,<br>120V AC @ 0.5A |
| Contact Switching Current: | 2A |
| Contact Switching Voltage: | 150V AC |
| Coil Resistance: | 700 ohms @ 17mA 12V DC |
| Operating Time (typical): | 5ms |
| Release Time (typical): | 5ms |
| Overall Size: | 15.6(l) x 10.6(w) x 10.5(h)mm. |

P 8007 $\$8^{60}$



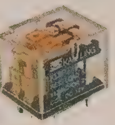


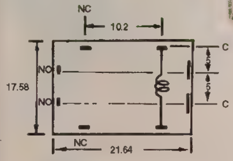
### SPDT 12V DC High-Power Relay

| | |
|---|---|
| Contact Current (max): | 10A |
| Contact Voltage (max): | 240V AC, 30VDC |
| Nominal Coil Voltage: | 12V DC |
| Coil Resistance: | 200 ohms |
| Operating Time (typical): | 20ms |
| Release Time (typical): | 10ms |
| Overall Size: | 29(l) x 13(w) x 25(h) mm |

P 8010 $\$9^{95}$

## DPDT

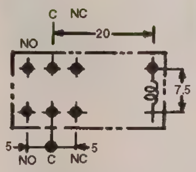


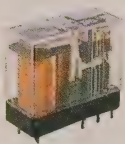


### DPDT 12V DC Relay

| | |
|---|---|
| Contact Current (max): | 5A @ 120V AC |
| Contact Voltage (max): | 120VAC |
| Coil Voltage (nom): | 12V DC |
| Coil Resistance: | 280 ohms |
| Operating Time (typical): | 10ms |
| Release Time (typical): | 7ms. |

P 8024 $\$5^{60}$

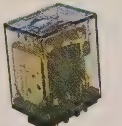


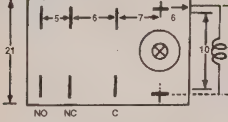


### DPDT 12V DC High-Power Relay

| | |
|---|---|
| Contact Current (max): | 10A |
| Contact Voltage: | 240V AC, 30V DC |
| Nominal Coil Voltage: | 12V DC |
| Coil Resistance: | 200 ohms |
| Operating Time (typical): | 20mS |
| Release Time (typical): | 10mS. |

P 8012 $\$12^{95}$





### DPDT 12V DC Heavy Duty Relay

High contact to coil voltage isolation.

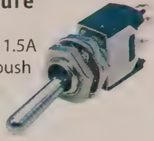
| | |
|---|---|
| Contact Current (max): | 10A |
| Contact Voltage (max): | 240V AC |
| Nominal Coil Voltage: | 2V DC, Coil |
| Resistance: | 160 ohms |
| Operating Time (typical): | 20ms |
| Release Time (typical): | 20ms. |

P 8014 $\$14^{95}$

# Toggle Switches

## ULTRA MINIATURE

### SPDT Ultraminiature Toggle Switch



Rating: 240V AC @ 1.5A
Mounting: Threaded bush
Overall Size: 8x5x28mm
Clearance: 14.5mm
Clear Out: 5mm
P 7673

$\$3^{75}$

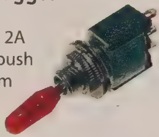
### DPDT Ultraminiature Toggle Switch

Rating: 240V AC @ 1.5A
Mounting: Threaded bush
Overall Size: 11x9x28mm
Clearance: 14.5mm
Cut Out: 5mm
P 7674

$\$4^{20}$

## MINIATURE

### SPDT Miniature Toggle Switch



Rating: 240V AC @ 2A
Mounting: Threaded bush
Overall Size: 13x7x33mm
Clearance: 14mm
Cut Out: 6.5mm
P 7654

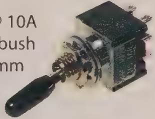
$\$4^{50}$

### DPDT Miniature Toggle Switch

Rating: 240V AC @ 2A
Mounting: Threaded bush
Overall Size: 13x12x33mm
Clearance: 14.5mm
Clear Out: 6.5mm
P 7656

$\$4^{90}$

### DPDT Miniature Heavy Duty Toggle Switch



Rating: 125V AC @ 10A
Mounting: Threaded bush
Overall Size: 13x13x36mm
Clearance: 19mm
Clear Out: 6mm
P 7652

$\$8^{30}$

### DP3T Miniature Centre "Off" Toggle Switch

Rating: 240V AC @ 2A
Mounting: Threaded bush
Overall Size: 12x12x35mm
Clearance: 14.5mm
Clear Out: 6.5mm
P 7682

$\$5^{20}$

### DP3T Miniature Centre "Off" Toggle Switch

Momentary "On" One Side Only,
Rating: 240V AC @ 2A
Mounting: Threaded bush
Overall Size: 13x12x33mm
Clearance: 14.5mm
Clear Out: 6.5mm
P 7684

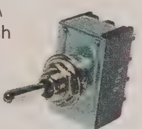
$\$5^{40}$

### DP3T Miniature Centre "Off" Toggle Switch

Momentary "On" Both Sides,
Rating: 240V AC @ 2A
Mounting: Threaded bush
Overall Size: 13x7x33mm
Clearance: 14.5mm
Clear Out: 6.5mm
P 7689

$\$6^{10}$

### 4PDT Miniature Toggle Switch



Rating: 240V AC @ 3A
Mounting: Threaded bush
Overall Size: 22x13x34mm
Clearance: 14.5mm
Clear Out: 6.5mm
P 7658

$\$10^{30}$

## STANDARD

### SPST Standard Toggle Switch With "On/Off" Indicator Plate

Rating: 125V AC @ 3A
Mounting: Threaded bush
Overall Size: 14x27x42mm
Clearance: 20.5mm
Cut Out: 12mm
P 7668

$\$4^{10}$

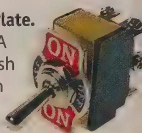
### DPDT Standard Toggle Switch With "On/Off" Indicator Plate

Rating: 125V AC @ 6A
Mounting: Threaded bush
Overall Size: 18x25x48mm
Clearance: 26mm
Cut Out: 12mm
Terminals: Solder
P 7670

$\$6^{40}$

### DP3T Standard Centre "Off" Toggle Switch

**With "On/Off" Indicator Plate.**



Rating: 125V AC @ 6A
Mounting: Threaded bush
Overall Size: 18x25x48mm
Clearance: 26mm
Cut Out: 12mm
Terminals: Solder
P 7672

$\$7^{40}$

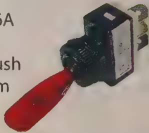
### DP3T Standard Centre "Off" Toggle Switch

Momentary "On"Both Sides
Rating: 12V DC @ 20A
Mounting: Threaded bush
Overall Size: 26x33x65mm
Clearance: 31mm
Cut Out: 12mm
P 7650

$\$7^{95}$

## SPECIAL

### SPST Illuminated Toggle Switch



Contacts: 12V DC @ 16A
Lamp: 12V
Mounting: Threaded bush
Overall Size: 15x25x65mm
Clearance: 26mm
Cut Out: 12mm
P 7666

$\$6^{20}$

### SPST Standard Toggle Switch Waterproof

Rating: 12V DC @ 10A
Mounting: Threaded bush
Overall Size: 32x18x58mm
Clearance: 40mm
Cut Out: 12mm
Terminals: Flying Leads
P 7664

$\$14^{95}$

## TOGGLE ACCESSORIES

### Mini Toggle Switch Caps

Suit miniature toggle switches. In pack of 5 colours.
H 1909

$\$1^{40}$

### Weatherproof Toggle Switch Hood

Designed for miniature toggle switches.
H 1914

$\$2^{80}$

### Weatherproof Toggle Switch Hood

Designed for standard M12 threaded toggle switches.
H 1915

$\$3^{30}$

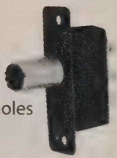
## SLIDE SWITCHES

### SPDT PCB Mount

Rating: 26VDC 6A
Mounting: PCB
Overall Size: 13x7x18mm
Clearance: 13mm
Cut Out: 4x8mm
P 7602

$\$3^{95}$

### DPDT Miniature



Rating: 50V DC
0.5 Amps
Mounting: 2 x M2 screw holes
Overall size: 23 x 8 x 19mm
Clearance: 12mm
Cut out: 9 x 4.5mm
Black
P 7613

$\$1^{65}$

### DPDT Sub-Miniature

Rating: 125VAC 0.5A
Mounting: 2xM3 Screw Holes
Overall Size: 35x13x26mm
Clearance: 13mm
Cut Out: 6x13mm
P 7616

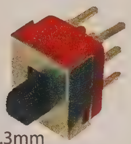
$\$1^{75}$

### DPDT Miniature

Rating: 50VDC 0.5A
Mounting: 2xM2 Screw Holes
Overall Size: 23x8x19mm
Clearance: 12mm
Cut Out: 9x4.5mm
P 7610

$\$1^{95}$

### DPDT PCB Mount



Rating: 240VAC 2A
Mounting: PCB
Overall Size: 12.8x11.3x14.3mm
Clearance: 9.4mm
Cut Out: 3.9x6.1mm
P 7600

$\$2^{95}$

### DP3T Miniature

Rating: 50VDC 0.5A
Mounting: 2xM3 Screw Holes
Overall Size: 24x8x21mm
Clearance: 12mm
Cut Out: 5x12mm
P 7614

$\$1^{75}$

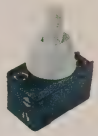
## LAMP SWITCHES

### SPST Lamp Switch

Rating: 240VAC 2A
Mounting: Threaded bush
Overall Size: 13x23x29mm
Clearance: 11mm
Cut Out: 10mm
Terminals: Screw
P 7874

$\$2^{95}$

### DPDT Lamp Switch

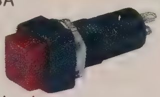


Rating: 240VAC 2A/Pole
Mounting: Threaded bush
Overall Size: 13x23x33mm
Clearance: 17mm
Cut Out: 10mm
Terminals: Screw
P 7876

$\$3^{50}$

## PUSH BUTTON SWITCHES MOMENTARY

### SPST Momentary Action Push 'On'



Rating: 250V AC 3A
Overall Size: 15x15
x37.8mm
Clearance: 27.3mm
Cut Out: 12mm
Mounting: Threaded bush
P 7568

$\$3^{70}$

### SPST Momentary "On"

Extra small
Rating: 120VAC 0.5A
Mounting: Threaded bush/PCB
Overall Size: 7x20.6mm
Clearance: 13mm
Cut Out: 5mm
Pin Size: 1mm
P 7558

$\$2^{95}$

### Single Pole Miniature – Normally Open

Rating: 125V AC 1A
Mounting: Threaded Bush
Overall Size: 28.1x9.5mm
Clearance: 17.5mm
Cut Out: 7.1mm
Black P 9750
Red P 7560
White P 9768

$\$3^{50}$

### Single Pole Miniature – Normally Closed

Rating: 125V AC 1A
Mounting: Threaded bush
Overall Size: 28.1x9.5mm
Clearance: 17.5mm
Cut Out: 7.1mm
Model: MS-313
Black P 7561
Red P 9751

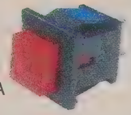
$\$3^{50}$

### SPST Momentary "On"

Ultra Miniature
Rating: 120VAC 1A
Mounting: Threaded bush
Overall Size: 9x5x18mm
Clearance: 14.5mm
Cut Out: 5mm
P 7559

$\$3^{70}$

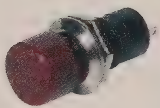
### SP Momentary ActionPush 'On'



Rating: 240VAC 1A
Mounting: Snap Lock
Overall Size: 14x14x24.5mm
Clearance: 19.5mm
Cut Out: 11x12.5mm
Red P 7552
Blue P 7550

$\$3^{90}$

### SPST Momentary Push Switch



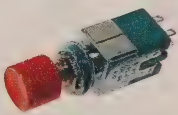
Red Push On
Rating: 250V AC @ 3A
Mounting: Round Panel Mount
Overall Size: 35.5x17mm diam.
Clearance: 15mm
Cut Out: 12mm diam.
Pin Spacing: 5mm
P 9755

$\$3^{95}$

### SPST Momentary Push 'On'

Round Head
Rating: 250V AC @ 1A
Mounting: Round Plated
Overall Size: 31mm
Clearance: 11.5mm
Cut Out: 10.2mm
Pin Spacing: 4.6mm
P 9762

$\$5^{95}$



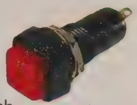
### DPDT Momentary 'On'

Rating: 125VAC 3A
Mounting: Threaded bush
Overall Size: 41.5x13x13mm
Clearance: 26.1mm
Cut Out: 6mm
Model: MS-300
P 7574

$\$7^{40}$

## PUSH BUTTON ALTERNATE ACTION

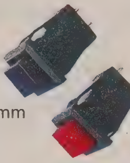
### SPST Alternate Action



Rating: 250V AC 3A
Overall Size: 15x15 x37.8mm
Clearance: 27.3mm
Cut Out: 12mm
Mounting: Threaded bush
P 7566

$3 50

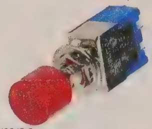
### SPST Mini Push "On/Off"



Rating: 250V AC 1A
Mounting: Snap Lock
Overall Size: 14.2x14.2x28mm
Clearance: 22mm
Cut Out: 11x12.5mm
Red P 7540
Black P 7542

$4 40 ea

### Sw PB Alternate SPDT 250V 3A



Rating: 250VAC 3 Amps
Mounting: Threaded Bush
Overall Size: 43.3 x 13 x 8.5mm
Clearance: 26mm
Cut Out: 5.8mm
P 7575

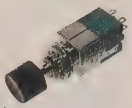
$5 30

### SPST On/Off Push Switch

Back On/Off Latching
Rating: 250V AC 3A
Mounting: Round Panel Mount
Overall Size: 35.5x17mm diam.
Clearance: 15mm
Cut Out: 12mm diam.
Pin Spacing: 5mm
P 9757

$6 40

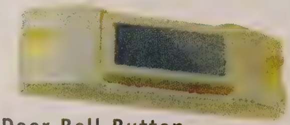
### DPDT Alternate Action



Rating: 125VAC 3A
Mounting: Threaded bush
Overall Size: 41.5x11x11.5mm
Clearance: 25.5mm
Cut Out: 6mm
Model: MS-197
P 7564

$7 20

## SPECIAL PUSH BUTTON



### Door Bell Button

Rating: 12/24V DC 1A
Overall Size: 23x77mm
Mounting: Screw
P 7554

$3 95

### SP Momentary Push "On"

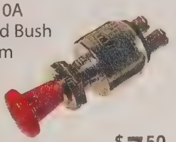
Rating: 35VDC 10mA
Mounting: PCB
Pin Size: 0.88 Square
Pin Spacing: On 5mm Square
Cut Out: 8mm Square
Single Black only P 7572 $2 10 ea
Pack of 4 Colours P 7570 $6 20 pk

### SP Pull On/Push Off Common Ground Push Button Switch

Rating: 12VDC 5A
Mounting: Threaded Bush
Overall Size: 30x22.5x42.4mm
Clearance: 21.6mm
Cut Out: 7.85mm
Terminals: Screw
P 7563

$5 95

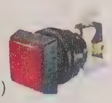
### SP Pull On/Push Off



Rating: 24VDC 10A
Mounting: Threaded Bush
Overall Size: 50x19mm
Clearance: 35.5mm
Cut Out: 10mm
Terminals: Screw
P 7562

$7 50

### Illuminated SPDT Momentary



Rating: 240V AC 10A
Lamp: 12-14V
Lens & Collar: 35mm Square
Cut Out: 24.5mm
Clearance: 56.2mm (depth)
Mounting: Threaded bush
Red P 7591
Green P 7593

$8 40 ea

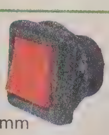
### SPDT Illuminated Soft Touch

Contacts: 250VAC 1A
Lamp: 12V 55mA T1 Bipin
Mounting: Threaded Bush
Cut Out: 12mm
Clearance: 40mm
**Red** P 7580
**Blue** P 7582
**Green** P 7584
**Yellow** P 7586

$19 95 ea

## ROCKER

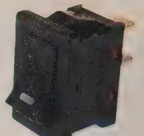
### SPST NON-Illuminated



Rating: 240VAC 6A
Overall Size: 23.2x23.2x26.8mm
Clearance: 24mm
Cut Out: 18mm
Mounting: Panel Lock Nut
P 7699

$2 95

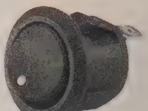
### SPST NON-Illuminated



Rating: 12VDC 2A
Overall Size: 15.5x21x23.5mm
Clearance: 17.5mm
Cut Out: 13x19mm
Mounting: Snap Lock
P 7700

$3 75

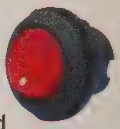
### SPST NON-Illuminated



Rating: 240VAC 6A
Flange Dia.: 22.95mm Round
Cut Out: 19.84mm
Clearance: 23.8mm
Mounting: Snap Lock
P 7701

$5 10

### DPDT Non-Illuminated



Rating: 240VAC 6A
Flange Dia.: 22.9mm
Cut Out: 17mm
Mounting: Lock Nut
P 7725

$5 20

### DPDT NON-Illuminated

Rating: 250VAC 3A
Overall Size: 20x30x30.7mm
Clearance: 15.7mm
Cut Out: 17mm
Mounting: Panel Lock Nut
P 7720

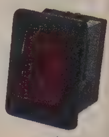
$6 20

### DP3T NON-Illuminated

Switching: Momentary "ON" Both Sides Centre Return OFF
Rating: 250VAC 5A
Overall Size: 44x25x46mm
Clearance: 40mm
Cut Out: 34x20mm
Mounting: Snap Lock
P 7730

$7 90

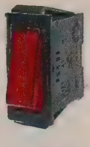
### SPST Illuminated



Rating: 250VAC 6A
Illumination: 240V Neon
Overall Size: 15x20x25mm
Clearance: 22mm
Cut Out: 12.9x19.2mm
Mounting: Snap Lock
P 7703

$5 10

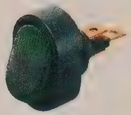
### SPST Illuminated



**Rating:** **240VAC 15A**
Illumination: 240V Neon
Overall Size: 14x29.8x41.2mm
Clearance: 33.3mm
Cut Out: 11.5x28.4mm
Mounting: Snap Lock
P 7705

$5.95 ea

### SPST Illuminated



**Rating:** **12VDC 30A**
Illumination: 12V Lamp
Overall Size: 30.6x19.2x44.72mm
Cut Out: 12 mm
Clearance: 35.5mm
Mounting: Panel Lock Nut
**Red** P 7723
**Green** P 7726

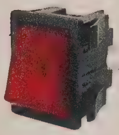
$5.95 ea

### DPST Illuminated

**Rating:** **250VAC 10A**
Illumination: 240V Neon
Overall Size: 25.2x31.5 x30.7mm
Clearance: 21.4mm
Cut Out: 27.2x22mm
Mounting: Snap Lock
**Red** P 7709
**Green** P 7710

$6.70 ea

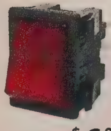
### DPST Illuminated



**Rating:** **240VAC 15A**
Illumination: 240V Neon
Overall Size: 22.73x30.35 x33mm
Clearance: 31mm
Cut Out: 27.2x22.1mm
Mounting: Snap Lock
P-7707

$6.95 ea

### DPDT 12V Illuminated



**Rating:** **240VAC 10A**
Illumination: 12V Lamp
Overall Size: 23x30.5x33mm
Clearance: 30mm
Cut Out: 27x22mm
Mounting: Snap Lock
P 7708

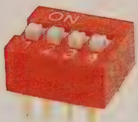
$6.95 ea

## MISCELLANEOUS

### Numeric Keypad

Switching: Matrix Scan
Overall Size: 51x64x11.5mm
Cut Out: 46x59mm
Clearance: 8.2mm
Mounting: Screws
Circuit Diagram Included
P 7810

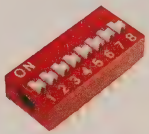
$11.10



### 4-Way SPST PCB DIP

Rating: 24VDC 50mA (Make & Break)
50VDC 100mA (Steady)
Overall Size: 11x10x5mm
Mounting: PCB
P 7851

$2.95

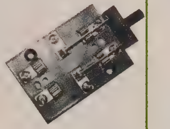


### 8-Way SPST PCB DIP

Rating: 24VDC 50mA (Make & Break)
50VDC 100mA (Steady)
Overall Size: 22x16x10mm
Mounting: PCB
P 7854

$4.45

### DPDT Knife Switch



Rating: 50VDC
Overall Size: 43x79x20mm
Body Size: 43x60x6mm
Terminals: Screw
Made in Japan
P 7862

$4.20

### SPDT Mini Micro

Rating: 240VAC 1.5A
Overall Size: 20x15x7mm
Mounting: Screw
P 7802

$3.50

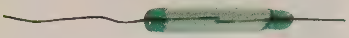
### SPDT Micro

Rating: 250VAC 10A
Overall Size: 38x21x10mm
Mounting: Screw
P 7800

$4.95

## ALARM

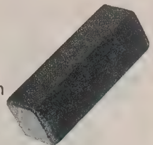
### Mini Reed Switch



Rating: 200VDC 0.5A
Glass Size: 12.7mm x 1.8mm
Switch: Normally Closed (with Magnet)
P 7856

$3.25

### Bar Magnet



Overall Size: 26x8x8mm
Operation Distance: 10mm from above reed switch
L 5214

$3.90

### Mercury "Tilt" Switch

Rating: 24VDC 1.5A
Glass Size: 25x6mm (approx)
P 7860

$5.75

## ROTARY

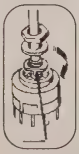
Precision-made rotary switches that are suitable for PCB mounting or panel mounting (9mm mounting hole). Shafts are of the standard (6mm) metric fluted types.
They will accept any standard 6mm knob. Switch contacts are 'make before break' in order to help eliminate clicking and popping. Matching washers and nuts are provided with every switch.

| Poles | Positions | No |
|---|---|---|
| 6 | 2 | P 7502 |
| 4 | 3 | P 7504 |
| 3 | 4 | P 7506 |
| 2 | 5 | P 7508 |
| 2 | 6 | P 7510 |

$4.20 ea

### Variable Position Rotary Switches

A great range of quality programmable position rotary switches, fully enclosed with a plastic shaft and suitable for grub-screw style knobs. Supplied with nut, lock washer and 'stop ring' which allows you to vary the number of switching positions. You can program 2 to 12 positions @ 30° indexing. Rated 240V @ 150mA with silver plated brass contacts.

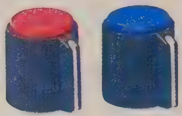


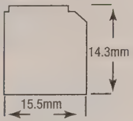
| Poles | Positions | No |
|---|---|---|
| 3 | 2-4 | P 7516 |
| 1 | 2-12 | P 7518 |
| 4 | 2-3 | P 7520 |
| 2 | 2-6 | P 7522 |

$4.95 ea

# Coloured Plastic Knobs

## 13mm Diameter (less pointer)



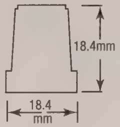


**Shaft type:** Screw fit.

| **Description** | **Cat No.** |
|---|---|
| Red | P 7072 |
| Blue | P 7074 |

$\$2^{40}$ ea

## 18mm Diameter



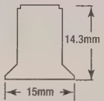
**Shaft type:** 6mm knurled push fit.

| **Description** | **Cat No.** |
|---|---|
| Red | P 7040 |
| Blue | P 7042 |
| Grey | P 7044 |
| Green | P 7046 |

$\$1^{70}$ ea

## METRIC RANGE INSTRUMENT KNOBS

### 10mm Diameter (15mm inc. skirt)



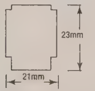
Miniature fluted sides with indicator.

**Shaft Type:** 6mm knurled push fit.

P 7126

$\$1^{40}$

### 21mm Diameter



Fluted side grip.

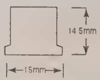
**Shaft Type:** 6mm Knurled push fit.

P 7004

*Limited stock

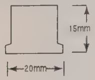
$\$2^{50}$

### 12mm Diameter (15mm including skirt)



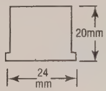
| **Description** | **Cat No.** | **Price** |
|---|---|---|
| Push fit | P 7010 | $1.95 |
| Screw fit | P 7020 | $1.95 |

## 16mm Diameter (20mm inc. skirt)



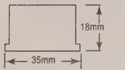
| **Description** | **Cat No.** | **Price** |
|---|---|---|
| Push fit | P 7012 | $1.95 |
| Screw fit | P 7022 | $2.10 |

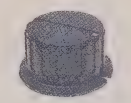
## 20mm Diameter (24mm inc. skirt)



| **Description** | **Cat No.** | **Price** |
|---|---|---|
| Push fit | P 7014 | $2.40 |
| Screw fit | P 7024 | $2.40 |

## 29mm Diameter (35mm inc. skirt)



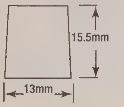


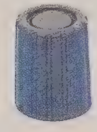
| **Description** | **Cat No.** | **Price** |
|---|---|---|
| Push fit | P 7016 | $2.80 |
| Screw fit | P 7026 | $2.90 |

## IMPERIAL RANGE

Smooth bore with grub screw to fit 1/4" shafts.

### 13mm Diameter





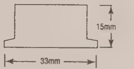
Miniature instrument knob with brass insert.

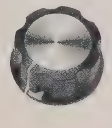
P 7124*

*Limited stock

$\$2^{80}$

### 30mm Diameter (33mm inc. skirt)



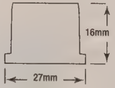


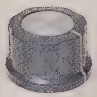
With silver top insert.

P 7105

$\$2^{80}$

### 24mm Diameter (27mm inc. skirt)





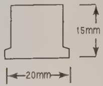
With silver top insert.

P 7106

$\$2^{40}$

## 16mm Diameter (20mm inc. skirt)

new for 2002

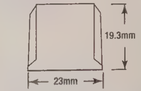


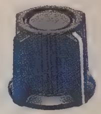
Shaft, black with silver top inlay.

P 7107

$\$1^{90}$

## 23mm Diameter





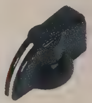
Instrument knob with 4-way finger posi-grip, white line indicator and grub screw fitting.

P 7122*

*Limited stock

$\$2^{90}$

## 31.5mm Pointer



**Base diameter:** 19mm

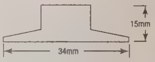
**Height:** 12.5mm

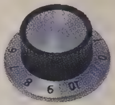
**Shaft type:** Screw fit

P 7102

$\$2^{95}$

## 24mm Diameter





37mm including skirting with 0-10 calibration.

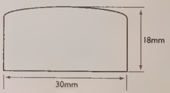
P 7104

$\$3^{10}$

## HI-FI/AUDIO KNOBS

### Low Profile Dome-shaped Top Knobs with White Dot Indicator

### 30mm Diameter



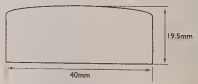
Push fit

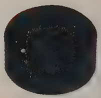
P 7118*

*Limited stock

$\$2^{90}$

### 40mm Diameter





Push fit.

P 7116*

*Limited stock

$\$2$

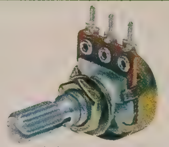
## SINGLE GANG POTENTIOMETERS

### 24mm Single Gang Linear Potentiometers

**0.5W 500VDC Metric Shaft (B)**

| Type Ohms | Cat No. | Type Ohms | Cat No. |
|---|---|---|---|
| 500 | R 6802 | 50K | R 6809 |
| 1K | R 6803 | 100K | R 6810 |
| 5K | R 6805 | 500K | R 6812 |
| 10K | R 6806 | 1M | R 6813 |
| 20K | R 6807 | 2M | R 6814 |

$3 95 ea



### 16mm Single Gang Linear Potentiometers

**200mW 200VDC Metric Shaft (B)**

| Type Ohms | Cat No. | Type Ohms | Cat No. |
|---|---|---|---|
| 500 | R 7549 | 50K | R 7559 |
| 1K | R 7551 | 100k | R 7561 |
| 5K | R 7553 | 250k | R 7563 |
| 10K | R 7555 | 500k | R 7565 |
| 25K | R 7557 | 1M | R 7567 |

$3 95 ea

### 24mm Single Gang Logarithmic Potentiometers

**0.25W 250VDC Metric Shaft (A)**

Uses 8mm diameter panel mounting holes.
Includes nuts and washers.
Type: LOG. Taper: 0.25W 250V. Resistance: 10K.

| Type Ohms | Cat No. |
|---|---|
| 10K | R 6820 |
| 50K | R 6823 |
| 100K | R 6824 |

$3 95 ea

### 16mm Single Gang Logarithmic Potentiometers

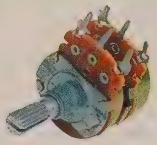
**100mW 150VDC Metric Shaft (A)**

| Type Ohms | Cat No. |
|---|---|
| 500 | R 7500 |
| 1K | R 7502 |
| 5K | R 7504 |
| 10K | R 7506 |
| 25K | R 7508 |
| 50K | R 7510 |
| 100K | R 7512 |

| Type Ohms | Cat No. |
|---|---|
| 250K | R 7514 |
| 500K | R 7516 |
| 1M | R 7518 |
| 2M | R 7520 |

$3 95 ea

## DUAL GANG POTENTIOMETERS

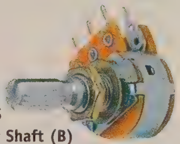


### 24mm Dual Gang Linear Potentiometers

**0.25W 350VDC**
**Metric Shaft (B)**

| Type Ohms | Cat No. |
|---|---|
| 10K | R 6834 |
| 20K | R 6836 |
| 50K | R 6839 |
| 100K | R-6840 |

$5 95 ea



### 16mm Dual Gang Linear Potentiometers

**125mW 200VDC Metric Shaft (B)**

| Type Ohms | Cat No. | Type Ohms | Cat No. |
|---|---|---|---|
| 5K | R 7653 | 100K | R 7661 |
| 10K | R 7655 | 500K | R 7665 |
| 25K | R 7657 | 1M | R 7667 |
| 50K | R 7659 | 2M | R 7669 |

$5 95 ea

### 24mm Dual Gang Logarithmic Potentiometers

**0.125W 250VDC Metric Shaft (A)**

Uses 8mm diameter panel mounting holes.
Includes nuts and washers.
Type: LOG. Taper: 0.125W 250V. Resistance: 50K.

| Type Ohms | Cat No. |
|---|---|
| 50K | R 6853 |

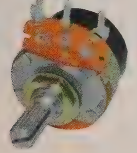
$5 95 ea

### 16mm Dual Gang Logarithmic Potentiometers

**60mW 150VDC Metric Shaft (A)**

| Type Ohms | Cat No. | Type Ohms | Cat No. |
|---|---|---|---|
| 5K | R 7604 | 100K | R 7612 |
| 10K | R 7606 | 500K | R 7616 |
| 25K | R 7608 | 1M | R 7618 |
| 50K | R 7610 | 2M | R 7620 |

$5 95 ea



### 24mm Dual Gang Linear Potentiometers

**Pot 24mm 1 MOhm**
**SG/Log/Sw (A)**

Uses 8mm diameter panel mounting holes.
Includes nuts and washers.
SPST Switch Rating: 125 volt.
R 6888

$5 95 ea

### Wire Wound Linear Potentiometers

**3W 500VDC 0.25" Shaft**

| Type Ohms | Cat No. | Type Ohms | Cat No. |
|---|---|---|---|
| 5 | R 6901 | 1K | R 6915 |
| 10 | R 6903 | 2K | R 6917 |
| 25 | R 6905 | 5K | R 6921 |
| 50 | R 6907 | 7.5K | R 6923 |
| 100 | R 6909 | 10K | R 6925 |
| 200 | R 6911 | | |
| 500 | R 6913 | | |

$11 95 ea

## TRIMPOTS

### 5mm Vertical Mount Horizontal Adjust

**100mW 100VDC Rated**

| Type Ohms | Cat No. | Type Ohms | Cat No. |
|---|---|---|---|
| 100 | R 1929 | 20K | R 1943 |
| 200 | R 1931 | 50K | R 1945 |
| 500 | R 1933 | 100K | R 1947 |
| 1K | R 1935 | 200K | R 1949 |
| 2K | R 1937 | 500K | R 1951 |
| 5K | R 1939 | 1M | R 1953 |
| 10K | R 1941 | 2M | R 1954 |

95¢ ea

### 10mm Vertical Mount Horizontal Adjust

**250mW 250VDC**

| Type Ohms | Cat No. | Type Ohms | Cat No. |
|---|---|---|---|
| 100 | R 1956 | 20K | R 1963 |
| 200 | R 1957 | 50K | R 1964 |
| 500 | R 1958 | 100K | R 1965 |
| 1K | R 1959 | 200K | R 1966 |
| 2K | R 1960 | 500K | R 1967 |
| 5K | R 1961 | 1M | R 1968 |
| 10K | R 1962 | 2M | R 1969 |

50¢ ea

### 5mm Horizontal Mount Vertical Adjust

**100mW 100VDC**

| Type Ohms | Cat No. | Type Ohms | Cat No. |
|---|---|---|---|
| 100 | R 1760 | 20K | R 1773 |
| 200 | R 1761 | 50K | R 1775 |
| 500 | R 1763 | 100K | R 1777 |
| 1K | R 1765 | 200K | R 1779 |
| 2K | R 1767 | 470K | R 1781 |
| 5K | R 1769 | 1M | R 1783 |
| 10K | R 1771 | 2M | R 1784 |

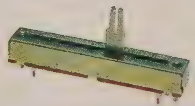
95¢ ea

### Multi-Turn Trimpots – 10 Turn

As used in a large variety of test gear, precision instruments, etc. Quality trimpots with 10 turns from end to end.

| Type Ohms | Cat No. |
|---|---|
| 1K | R 1900 |
| 5K | R 1904 |
| 10K | R 1901 |
| 20K | R 1902 |
| 50K | R 1903 |
| 100K | R 1905 |

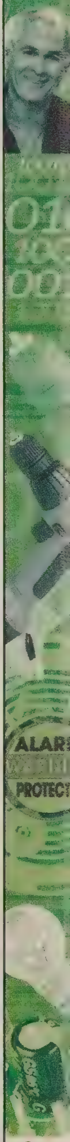
$2 75 ea



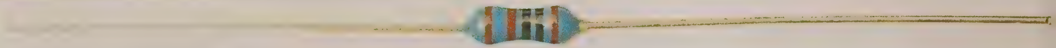
### 50K Ohm Slider Potentiometer

Quality 50K ohm linear pot.
It's 73mm long with 45mm travel.
R 1980

$3 95 ea



# Resistors

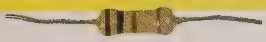


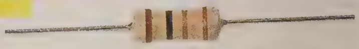
## 1/4W Metal Film Resistors

E24 range resistors.....all 1% tolerance. E24 means that you now get closer values to those you are after, rather than the E12 'Preferred Values'.

| Value in ohms | No. | Value in ohms | No. | Value in ohms | No. | Value in ohms | No. | Value in ohms | No. | Value in ohms | No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 56 | R 0544 | 470 | R 0566 | 4.7k | R 0590 | 33k | R 0612 | 220k | R 0632 |
| 1.5 | R 0523 | 68 | R 0546 | 560 | R 0568 | 5.6k | R 0592 | 39k | R 0614 | 270k | R 0634 |
| 10 | R 0526 | 82 | R 0548 | 680 | R 0570 | 6.8k | R 0594 | 47k | R 0616 | 330k | R 0636 |
| 12 | R 0528 | 100 | R 0550 | 820 | R 0572 | 8.2k | R 0596 | 51k | R 0617 | 390k | R 0638 |
| 15 | R 0530 | 120 | R 0552 | 1.0k | R 0574 | 10k | R 0598 | 56k | R 0618 | 470k | R 0640 |
| 18 | R 0532 | 150 | R 0554 | 1.5k | R 0578 | 12k | R 0600 | 68k | R 0620 | 560k | R 0642 |
| 22 | R 0534 | 180 | R 0556 | 1.8k | R 0580 | 15k | R 0602 | 82k | R 0622 | 680k | R 0644 |
| 27 | R 0536 | 220 | R 0558 | 2.2k | R 0582 | 18k | R 0604 | 100k | R 0624 | 820k | R 0646 |
| 33 | R 0538 | 270 | R 0560 | 2.7k | R 0584 | 20k | R 0605 | 120k | R 0626 | 1M | R 0648 |
| 39 | R 0540 | 330 | R 0562 | 3.3k | R 0586 | 22k | R 0606 | 150k | R 0628 | | |
| 47 | R 0542 | 390 | R 0564 | 3.9k | R 0588 | 27k | R 0608 | 180k | R 0630 | | |

**15¢ea**

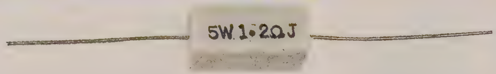




## Carbon Film Resistors

E12 'Preferred Value' carbon film resistors. 5% tolerance in 1/4W, 1/2W and 1W values. An economical alternative where cost is important.

| Value in ohms | 1/4W 10¢ ea | 1/2W 15¢ ea | 1W 20¢ ea | Value in ohms | 1/4W 10¢ ea | 1/2W 15¢ ea | 1W 20¢ ea | Value in ohms | 1/4W 10¢ ea | 1/2W 15¢ ea | 1W 20¢ ea |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.0 | R 1002 | R 1202 | R 1402 | 270 | R 1060 | R 1260 | R 1460 | 68k | R 1120 | R 1320 | R 1520 |
| 1.2 | R 1004 | R 1204 | R 1404 | 330 | R 1062 | R 1262 | R 1462 | 82k | R 1122 | R 1322 | R 1522 |
| 1.5 | R 1006 | R 1206 | R 1406 | 390 | R 1064 | R 1264 | R 1464 | 100k | R 1124 | R 1324 | R 1524 |
| 1.8 | R 1008 | R 1208 | R 1408 | 470 | R 1066 | R 1266 | R 1466 | 120k | R 1126 | R 1326 | R 1526 |
| 2.2 | R 1010 | R 1210 | R 1410 | 560 | R 1068 | R 1268 | R 1468 | 150k | R 1128 | R 1328 | R 1528 |
| 2.7 | R 1012 | R 1212 | R 1412 | 680 | R 1070 | R 1270 | R 1470 | 180k | R 1130 | R 1330 | R 1530 |
| 3.3 | R 1014 | R 1214 | R 1414 | 820 | R 1072 | R 1272 | R 1472 | 220k | R 1132 | R 1332 | R 1532 |
| 3.9 | R 1016 | R 1216 | R 1416 | 1.0k | R 1074 | R 1274 | R 1474 | 270k | R 1134 | R 1334 | R 1534 |
| 4.7 | R 1018 | R 1218 | R 1418 | 1.2k | R 1076 | R 1276 | R 1476 | 330k | R 1136 | R 1336 | R 1536 |
| 5.6 | R 1020 | R 1220 | R 1420 | 1.5k | R 1078 | R 1278 | R 1478 | 390k | R 1138 | R 1338 | R 1538 |
| 6.8 | R 1022 | R 1222 | R 1422 | 1.8k | R 1080 | R 1280 | R 1480 | 470k | R 1140 | R 1340 | R 1540 |
| 8.2 | R 1024 | R 1224 | R 1424 | 2.2k | R 1082 | R 1282 | R 1482 | 560k | R 1142 | R 1342 | R 1542 |
| 10 | R 1026 | R 1226 | R 1426 | 2.7k | R 1084 | R 1284 | R 1484 | 680k | R 1144 | R 1344 | R 1544 |
| 12 | R 1028 | R 1228 | R 1428 | 3.3k | R 1086 | R 1286 | R 1486 | 820k | R 1146 | R 1346 | R 1546 |
| 15 | R 1030 | R 1230 | R 1430 | 3.9k | R 1088 | R 1288 | R 1488 | 1M | R 1148 | R 1348 | R 1548 |
| 18 | R 1032 | R 1232 | R 1432 | 4.7k | R 1090 | R 1290 | R 1490 | 1.2M | R 1150 | R 1350 | R 1550 |
| 22 | R 1034 | R 1234 | R 1434 | 5.6k | R 1092 | R 1292 | R 1492 | 1.5M | R 1152 | R 1352 | R 1552 |
| 27 | R 1036 | R 1236 | R 1436 | 6.8k | R 1094 | R 1294 | R 1494 | 1.8M | R 1154 | R 1354 | R 1554 |
| 33 | R 1038 | R 1238 | R 1438 | 8.2k | R 1096 | R 1296 | R 1496 | 2.2M | R 1156 | R 1356 | R 1556 |
| 39 | R 1040 | R 1240 | R 1440 | 10k | R 1098 | R 1298 | R 1498 | 2.7M | R 1158 | R 1358 | R 1558 |
| 47 | R 1042 | R 1242 | R 1442 | 12k | R 1100 | R 1300 | R 1500 | 3.3M | R 1160 | R 1360 | R 1560 |
| 56 | R 1044 | R 1244 | R 1444 | 15k | R 1102 | R 1302 | R 1502 | 3.9M | R 1162 | R 1362 | R 1562 |
| 68 | R 1046 | R 1246 | R 1446 | 18k | R 1104 | R 1304 | R 1504 | 4.7M | R 1164 | R 1364 | R 1564 |
| 82 | R 1048 | R 1248 | R 1448 | 22k | R 1106 | R 1306 | R 1506 | 5.6M | R 1166 | R 1366 | R 1566 |
| 100 | R 1050 | R 1250 | R 1450 | 27k | R 1108 | R 1308 | R 1508 | 6.8M | R 1168 | R 1368 | R 1568 |
| 120 | R 1052 | R 1252 | R 1452 | 33k | R 1112 | R 1312 | R 1512 | 8.2M | R 1170 | R 1370 | R 1570 |
| 150 | R 1054 | R 1254 | R 1454 | 39k | R 1114 | R 1314 | R 1514 | 10M | R 1172 | R 1372 | R 1572 |
| 180 | R 1056 | R 1256 | R 1456 | 47k | R 1116 | R 1316 | R 1516 | | | | |
| 220 | R 1058 | R 1258 | R 1458 | 56k | R 1118 | R 1318 | R 1518 | | | | |



See page 303 for
Resistor Colour Code Guide

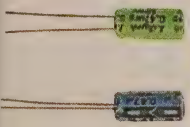
## 5 Watt Resistors

Resistors encased in a ceramic/cement material for greater heat dissipation characteristics. Used mostly in high powered equipment.

| Value in ohms | No | Value in ohms | No | Value in ohms | No | Value in ohms | No | Value in ohms | No | Value in ohms | No |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.1 | R 1600 | 4.7 | R 1618 | 22 | R 1634 | 100 | R 1650 | 470 | R 1666 | 2.2k | R 1682 |
| 0.22 | R 1603 | 5.6 | R 1620 | 27 | R 1636 | 120 | R 1652 | 560 | R 1668 | 2.7k | R 1684 |
| 0.47 | R 1601 | 6.8 | R 1622 | 33 | R 1638 | 150 | R 1654 | 680 | R 1670 | 3.3k | R 1686 |
| 1.0 | R 1602 | 8.2 | R 1624 | 39 | R 1640 | 180 | R 1656 | 820 | R 1672 | 4.7k | R 1689 |
| 1.2 | R 1604 | 10 | R 1626 | 47 | R 1642 | 220 | R 1658 | 1.0k | R 1674 | | |
| 1.5 | R 1606 | 12 | R 1628 | 56 | R 1644 | 270 | R 1660 | 1.2k | R 1676 | | |
| 2.2 | R 1610 | 15 | R 1630 | 68 | R 1646 | 330 | R 1662 | 1.5k | R 1678 | | |
| 3.3 | R 1614 | 18 | R 1632 | 82 | R 1648 | 390 | R 1664 | 1.8k | R 1680 | | |

**70¢ea**

### Electrolytic Capacitors – Radial (RB)

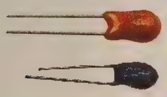


| Value in µF | Volt. | Cat.No. | Price | Value in µF | Volt. | Cat.No. | Price | Value in µF | Volt. | Cat.No. | Price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.47 | 50 | R 4290 | $0.25 | 33 | 35 | R 4340 | $0.55 | 470 | 25 | R 4420 | $1.00 |
| 0.47 | 100 | R 4292 | $0.50 | 47 | 25 | R 4350 | $0.50 | 470 | 63 | R 4422 | $2.65 |
| 1.0 | 50 | R 4295 | $0.25 | 47.0 | 63 | R 4355 | $0.95 | 680 | 16 | R 4435 | $0.95 |
| 1.0 | 100 | R 4297 | $0.50 | 100 | 16 | R 4360 | $0.35 | 1000 | 16 | R 4440 | $1.10 |
| 2.2 | 100 | R 4302 | $0.50 | 100 | 25 | R 4370 | $0.50 | 1000 | 25 | R 4450 | $1.25 |
| 4.7 | 80 | R 4312 | $0.45 | 100 | 63 | R 4372 | $1.15 | 1000 | 63 | R 4458 | $5.40 |
| 10 | 25 | R 4315 | $0.25 | 220 | 16 | R 4380 | $0.50 | 2200 | 16 | R 4459 | $1.30 |
| 10 | 63 | R 4317 | $0.65 | 220 | 25 | R 4390 | $0.65 | 2200 | 25 | R 4460 | $2.10 |
| 22 | 25 | R 4319 | $0.25 | 220 | 63 | R 4392 | $1.25 | 2200 | 63 | R 4461 | $7.95 |
| 22.0 | 35 | R 4320 | $0.45 | 330 | 25 | R 4400 | $0.95 | 5600 | 40 | R 4475 | $7.95 |
| 22.0 | 50 | R 4321 | $0.65 | 470 | 10 | R 4407 | $0.60 | 6800 | 10 | R 4470 | $3.95 |
| 33 | 16 | R 4335 | $0.35 | 470 | 16 | R 4410 | $0.75 | 10000 | 10 | R 4480 | $4.95 |

### Electrolytic Capacitors – Axial (RT)

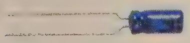
| Value in µF | Volt. | Cat.No. | Price | Value in µF | Volt. | Cat.No. | Price | Value in µF | Volt. | Cat.No. | Price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.0 | 350 | R 4015 | $1.25 | 33 | 16 | R 4095 | $0.75 | 1000 | 16 | R 4175 | $1.95 |
| 2.2 | 63 | R 4020 | $1.25 | 47 | 25 | R 4110 | $0.75 | 1000 | 25 | R 4180 | $2.10 |
| 3.3 | 25 | R 4025 | $0.55 | 100 | 10 | R 4125 | $0.75 | 1000 | 35 | R 4185 | $2.95 |
| 10 | 63 | R 4065 | $0.75 | 100 | 63 | R 4135 | $1.15 | 1000 | 63 | R 4190 | $2.00 |
| 10 | 80 | R 4068 | $0.75 | 220 | 16 | R 4145 | $0.80 | 2200 | 16 | R 4196 | $2.50 |
| 22 | 25 | R 4086 | $0.75 | 220 | 25 | R 4150 | $0.80 | 2200 | 35 | R 4206 | $2.00 |
| 22 | 63 | R 4091 | $0.75 | 470 | 63 | R 4165 | $1.85 | 2200 | 50 | R 4211 | $5.20 |

### Tantalums Capacitors



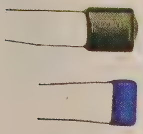
| Val. in µF | Volt. | Cat.No. | Price | Val. in µF | Volt. | Cat.No. | Price | Val. in µF | Volt. | Cat.No. | Price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.1 | 35 | R 4700 | $0.75 | 1.0 | 35 | R 4720 | $0.90 | 10 | 25 | R 4750 | $1.10 |
| 0.22 | 35 | R 4705 | $0.75 | 2.2 | 35 | R 4730 | $0.90 | 22 | 16 | R 4760 | $1.20 |
| 0.33 | 35 | R 4710 | $0.75 | 3.3 | 35 | R 4735 | $0.90 | 33 | 10 | R 4765 | $1.45 |
| 0.47 | 35 | R 4715 | $0.75 | 4.7 | 35 | R 4740 | $0.90 | 33 | 16 | R 4766 | $1.75 |
| 0.68 | 35 | R 4717 | $0.75 | 6.8 | 35 | R 4745 | $0.90 | 47 | 6.3 | R 4770 | $1.95 |
| | | | | | | | | 100 | 3 | R 4775 | $1.95 |

### Bipolar Electrolytics (BP or NP) Capacitors



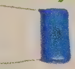
| Val. in µF | Volt. | Cat.No. | Price | Val. in µF | Volt. | Cat.No. | Price | Val. in µF | Volt. | Cat.No. | Price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.2 | 50 | R 4600 | $0.75 | 4.7 | 50 | R 4610 | $0.75 | 10 | 50 | R 4630 | $0.95 |
| 3.3 | 50 | R 4605 | $0.75 | 6.8 | 50 | R 4620 | $0.95 | 22 | 50 | R 4640 | $1.10 |
| | | | | | | | | 47 | 50 | R 4650 | $2.25 |

### 100V DC Metallised Polyester Film Capacitors – Greencaps



| Val. in µF | Volt. | Cat.No. | Price | Val. in µF | Volt. | Cat.No. | Price | Val. in µF | Volt. | Cat.No. | Price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0012 | 100 | R 2012 | $0.30 | 0.01 | 100 | R 2055 | $0.50 | 0.1 | 100 | R 2100 | $0.75 |
| 0.0015 | 100 | R 2015 | $0.30 | 0.012 | 100 | R 2057 | $0.40 | 0.12 | 100 | R 2102 | $0.50 |
| 0.0018 | 100 | R 2018 | $0.30 | 0.015 | 100 | R 2060 | $0.50 | 0.15 | 100 | R 2105 | $0.70 |
| 0.0022 | 100 | R 2020 | $0.30 | 0.018 | 100 | R 2062 | $0.30 | 0.22 | 100 | R 2110 | $0.90 |
| 0.0033 | 100 | R 2025 | $0.50 | 0.022 | 100 | R 2065 | $0.50 | 0.27 | 100 | R 2115 | $0.70 |
| 0.0027 | 100 | R 2027 | $0.30 | 0.027 | 100 | R 2067 | $0.30 | 0.33 | 100 | R 2120 | $0.70 |
| 0.0039 | 100 | R 2030 | $0.30 | 0.033 | 100 | R 2070 | $0.50 | 0.39 | 100 | R 2125 | $0.70 |
| 0.0047 | 100 | R 2035 | $0.50 | 0.039 | 100 | R 2075 | $0.30 | 1.0 | 100 | R 2135 | $2.25 |
| 0.0056 | 100 | R 2040 | $0.30 | 0.056 | 100 | R 2085 | $0.30 | 2.0 | 100 | R 2140 | $2.25 |
| 0.0068 | 100 | R 2045 | $0.30 | 0.068 | 100 | R 2090 | $0.30 | 3.3 | 100 | R 2145 | $1.45 |
| 0.0082 | 100 | R 2050 | $0.30 | 0.082 | 100 | R 2095 | $0.30 | | | | |

### 630V DC Metallised Polyester Film Capacitors

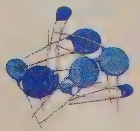


| Value in µF | Cat.No. | Price | Value in µF | Cat.No. | Price | Value in µF | Cat.No. | Price |
|---|---|---|---|---|---|---|---|---|
| 0.01 | R 2160 | $0.95 | 0.022 | R 2162 | $0.95 | 0.033 | R 2164 | $1.45 |
| 0.1 | R 2170 | $1.95 | 0.22 | R 2172 | $2.25 | 0.33 | R 2174 | $2.50 |

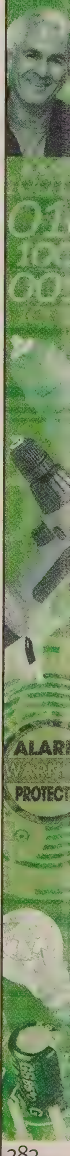
### Ceramic Capacitors

| Value | Volt. | Cat.No. | Price | Value | Volt. | Cat.No. | Price | Value | Volt. | Cat.No. | Price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1pF | 50 | R 2215 | $0.20 | 33pF | 50 | R 2247 | $0.30 | 680pF | 50 | R 2303 | $0.30 |
| 1.5pF | 50 | R 2217 | $0.20 | 39pF | 50 | R 2249 | $0.30 | 820pF | 50 | R 2305 | $0.30 |
| 2.2pF | 50 | R 2219 | $0.20 | 47pF | 50 | R 2251 | $0.30 | 0.001µF | 50 | R 2307 | $0.30 |
| 2.7pF | 50 | R 2221 | $0.20 | 56pF | 50 | R 2253 | $0.30 | 0.0022µF | 50 | R 2309 | $0.30 |
| 3.3pF | 50 | R 2223 | $0.20 | 68pF | 50 | R 2257 | $0.30 | 0.0033µF | 50 | R 2311 | $0.30 |
| 3.9pF | 50 | R 2225 | $0.20 | 82pF | 50 | R 2259 | $0.30 | 0.0047µF | 50 | R 2313 | $0.30 |
| 4.7pF | 50 | R 2227 | $0.20 | 100pF | 50 | R 2285 | $0.30 | 0.0056µF | 50 | R 2315 | $0.30 |
| 5.6pF | 50 | R 2229 | $0.20 | 120pF | 50 | R 2287 | $0.30 | 0.0068µF | 50 | R 2317 | $0.30 |
| 6.8pF | 50 | R 2231 | $0.20 | 150pF | 50 | R 2289 | $0.30 | 0.0082µF | 50 | R 2319 | $0.30 |
| 8.2pF | 50 | R 2233 | $0.20 | 180pF | 50 | R 2291 | $0.30 | 0.01µF | 50 | R 2321 | $0.30 |
| 10pF | 50 | R 2235 | $0.20 | 220pF | 50 | R 2293 | $0.30 | 0.022µF | 50 | R 2323 | $0.30 |
| 12pF | 50 | R 2237 | $0.20 | 270pF | 50 | R 2295 | $0.30 | 0.033µF | 50 | R 2325 | $0.30 |
| 15pF | 50 | R 2239 | $0.20 | 330pF | 50 | R 2296 | $0.30 | 0.047µF | 50 | R 2327 | $0.30 |
| 18pF | 50 | R 2241 | $0.30 | 390pF | 50 | R 2297 | $0.30 | 0.1µF | 50 | R 2360 | $0.75 |
| 22pF | 50 | R 2243 | $0.30 | 470pF | 50 | R 2299 | $0.30 | 0.22µF | 25 | R 2370 | $0.75 |
| 27pF | 50 | R 2245 | $0.30 | 560pF | 50 | R 2301 | $0.30 | | | | |

### High Voltage Disc Ceramics Capacitors



| Value | Volt. | Cat.No. | Price | Value | Volt. | Cat.No. | Price | Value | Volt. | Cat.No. | Price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 100pF | 3kv | R 2375 | $1.95 | 390pF | 3kv | R 2384 | $1.95 | 0.0033µF | 3kv | R 2393 | $2.45 |
| 120pF | 3kv | R 2376 | $1.95 | 470pF | 3kv | R 2386 | $1.95 | 0.0047µF | 3kv | R 2394 | $2.45 |
| 150pF | 3kv | R 2378 | $1.95 | 560pF | 3kv | R 2387 | $1.95 | 0.0056µF | 3kv | R 2395 | $2.95 |
| 180pF | 3kv | R 2380 | $1.95 | 680pF | 3kv | R 2388 | $1.95 | 0.0068µF | 3kv | R 2396 | $2.95 |
| 220pF | 3kv | R 2381 | $1.95 | 820pF | 3kv | R 2389 | $1.95 | 0.0082µF | 3kv | R 2398 | $2.95 |
| 270pF | 3kv | R 2382 | $1.95 | 0.001µF | 3kv | R 2390 | $2.45 | 0.01µF | 3kv | R 2400 | $4.25 |
| 320pF | 3kv | R 2383 | $1.95 | 0.0022µF | 3kv | R 2392 | $2.45 | | | | |



# Capacitors, MOVs, Thermistors

## Boxed Casing Metallised Polyester Film Capacitors

100 volt MKT caps that are of consistent size, making it easier to design and construct circuits. They also have consistent lead spacing of 5.08mm and they feature markings on the upper edge so as to make them easier to identify when mounted on the PCB.

| Value in µF | Voltage | Tol | Cat.No. | Price | Value in µF | Voltage | Tol | Cat.No. | Price | Value in µF | Voltage | Tol | Cat.No. | Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.001 | 100 WV | 5% | R 3000 | $0.45 | 0.012 | 100 WV | 5% | R 3014 | $0.50 | 0.1 | 100 WV | 5% | R 3025 | $0.65 |
| 0.0012 | 100 WV | 5% | R 3001 | $0.45 | 0.015 | 100 WV | 5% | R 3015 | $0.50 | 0.12 | 63 WV | 5% | R 3026 | $0.65 |
| 0.0015 | 100 WV | 5% | R 3002 | $0.45 | 0.018 | 100 WV | 5% | R 3016 | $0.50 | 0.15 | 63 WV | 5% | R 3027 | $0.70 |
| 0.0018 | 100 WV | 5% | R 3003 | $0.45 | 0.022 | 100 WV | 5% | R 3017 | $0.50 | 0.18 | 63 WV | 5% | R 3028 | $0.70 |
| 0.0022 | 100 WV | 5% | R 3004 | $0.45 | 0.027 | 100 WV | 5% | R 3018 | $0.50 | 0.22 | 63 WV | 5% | R 3029 | $0.80 |
| 0.0033 | 100 WV | 5% | R 3006 | $0.45 | 0.033 | 100 WV | 5% | R 3019 | $0.50 | 0.27 | 63 WV | 5% | R 3030 | $0.90 |
| 0.0039 | 100 WV | 5% | R 3007 | $0.45 | 0.039 | 100 WV | 5% | R 3020 | $0.50 | 0.33 | 63 WV | 5% | R 3031 | $1.00 |
| 0.0047 | 100 WV | 5% | R 3008 | $0.45 | 0.047 | 100 WV | 5% | R 3021 | $0.50 | 0.39 | 63 WV | 5% | R 3032 | $1.20 |
| 0.0056 | 100 WV | 5% | R 3009 | $0.45 | 0.056 | 100 WV | 5% | R 3022 | $0.50 | 0.47 | 63 WV | 5% | R 3033 | $1.40 |
| 0.0068 | 100 WV | 5% | R 3010 | $0.45 | 0.068 | 100 WV | 5% | R 3023 | $0.50 | 1.0 | 63 WV | 10% | R 3037 | $1.70 |
| 0.0082 | 100 WV | 5% | R 3011 | $0.45 | 0.082 | 100 WV | 5% | R 3024 | $0.55 | 1.5 | 63 WV | 10% | R 3038 | $2.10 |
| 0.01 | 100 WV | 5% | R 3012 | $0.50 | | | | | | | | | | |

## Monolithic Multilayer Ceramic Capacitors

Ideal for by-pass applications such as in power supplies and computer boards. They provide excellent stability in a small package

| Value | Voltage | Temp | Cat. No | Price | Value | Voltage | Temp | Cat. No | Price | Value | Voltage | Temp | Cat. No | Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10pF | 50 | NPO | R 1981 | $0.40 | 330pF | 50 | NPO | R 1991 | $0.40 | 0.022µF | 50 | X7R | R 2005 | $0.50 |
| 15pF | 50 | NPO | R 1982 | $0.40 | 470pF | 50 | NPO | R 1994 | $0.40 | 0.033µF | 50 | X7R | R 2006 | $0.45 |
| 22pF | 50 | NPO | R 1983 | $0.40 | 680pF | 50 | NPO | R 1995 | $0.25 | 0.047µF | 50 | X7R | R 2007 | $0.50 |
| 33pF | 50 | NPO | R 1984 | $0.25 | 1500pF | 50 | X7R | R 1997 | $0.25 | 0.068µF | 50 | X7R | R 2008 | $0.30 |
| 47pF | 50 | NPO | R 1985 | $0.40 | 2200pF | 50 | X7R | R 1998 | $0.40 | 0.1µF | 50 | X7R | R 2001 | $0.65 |
| 68pF | 50 | NPO | R 1986 | $0.25 | 3300pF | 50 | X7R | R 1999 | $0.25 | 0.15µF | 50 | Z5U | R 2180 | $0.60 |
| 100pF | 50 | NPO | R 1987 | $0.40 | 4700pF | 50 | X7R | R 2002 | $0.40 | 0.22µF | 50 | Z5U | R 2181 | $0.60 |
| 120pF | 50 | NPO | R 1988 | $0.25 | 6800pF | 50 | X7R | R 2003 | $0.25 | 0.33µF | 50 | Z5U | R 2182 | $0.70 |
| 150pF | 50 | NPO | R 1989 | $0.25 | 0.01µF | 50 | X7R | R 2000 | $0.50 | 0.68µF | 50 | Z5U | R 2184 | $0.70 |
| 220pF | 50 | NPO | R 1990 | $0.25 | 0.015µF | 50 | X7R | R 2004 | $0.50 | 1.0µF | 25 | Z5U | R 2185 | $0.95 |

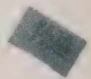
## Polystyrene Capacitors

With a low temperature coefficient, these are ideal for use where stability is important. All are rated at 250V DC.

| Value | Cat. No. | Value | Cat. No. | Value | Cat.No. | Value | Cat. No. | Value | Cat. No. | Value | Cat.No. | Value | Cat. No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 33pF | R 2807 | 56pF | R 2813 | 100pF | R 2819 | 180pF | R 2825 | 330pF | R 2831 | 560pF | R 2837 | 1000pF | R 2843 |
| 39pF | R 2809 | 68pF | R 2815 | 120pF | R 2821 | 220pF | R 2827 | 390pF | R 2833 | 680pF | R 2839 | | |
| 47pF | R 2811 | 82pF | R 2817 | 150pF | R 2823 | 270pF | R 2829 | 470pF | R 2835 | 820pF | R 2841 | | |

50c ea

## 275V AC Mains Suppression Capacitors



| | Value µF | Cat.No. | Price | | Value µF | Cat.No. | Price |
|---|---|---|---|---|---|---|---|
| X-Class | 0.01 | R 2620 | $1.35 | X-Class | 0.22 | R 2630 | $2.15 |
| X-Class | 0.022 | R 2622 | $1.45 | X-Class | 0.33 | R 2632 | $2.55 |
| X-Class | 0.033 | R 2624 | $1.55 | X-Class | 0.47 | R 2634 | $2.95 |
| X-Class | 0.047 | R 2626 | $1.65 | Y-Class | 0.0047 | R 2640 | $3.45 |
| X-Class | 0.1 | R 2628 | $1.95 | | | | |

## Trimmer Capacitors

| Range | Cat.No. | Price | Colour Code |
|---|---|---|---|
| 9.8-60pF | R 2930 | $2.95 | Brown |
| 1.8-22pF | R 2940 | $2.95 | Green |

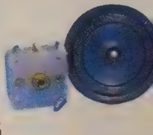
## Variable Tuning Gang Capacitor

Used in AM receivers and transistor radio circuits.

| | |
|---|---|
| Range: | 60-160pF |
| Body Size: | 20.2 x 20 x 10.5 |
| Knob Diameter: | 35.7mm |

R 2970

$3.95



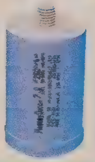
## High Discharge Capacitor

Suits heavy discharge current circuits e.g. strobes. Includes in-built discharge resistor. Non-polarised.

| | |
|---|---|
| Value: | 7.0uF |
| Voltage: | 250VAC |

R 2857

$9.95



## Metal Oxide Varistors

| | |
|---|---|
| Max Operating Voltage: | 275VAC |
| Pulse Energy Rating: | 20 joules |
| Peak Pulse Current: | 2000 Amps |

Device Types: VE17M0275K, TNR15G321K, IN140431.

R 1802

$2.85

## THERMISTORS

### Thermistor -30 to +125°C 100k NTC

10mA epoxy beaded disc with lead.

Dimensions: Lead length 31mm; lead spacing 3.2mm; body diameter 6.5mm; body thickness 5mm (tolerances vary). Operating Range: -30 to +125°C.

Thermal Time Constant: 24 secs.

R 1895

$1.45

### Thermistor -20 to +125°C 100k NTC

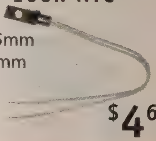
20mA with leads and mounting tag.

Dimensions: body (including tag) 7.5mm x 17mm; thickness 0.9mm (min), 5.4mm (max); leads 145mm.

Thermal Time Constant: 18 secs.

R 1890

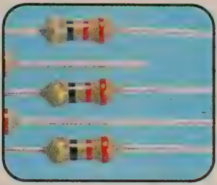
$4.65



## RESISTOR PACKS

### 300 Piece 1/4W Pack

Computer selected 300 pieces in 50 different values for maximum versatility.
5% tolerance carbon film resistors in a value priced pack
R 7010 $\$9^{95}$

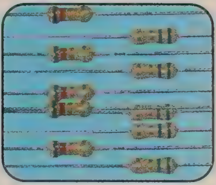


### 5% 1/4W Budget Packs

In a selected value range

| Pack | Value Range | Pieces | Cat.No. |
|---|---|---|---|
| Pack A | 0-8.2 Ohms | 130 | R 7100 |
| Pack B | 10-82 Ohms | 120 | R 7102 |
| Pack C | 100-820 Ohms | 120 | R 7104 |
| Pack D | 1k-8.2 kOhms | 120 | R 7106 |
| Pack E | 10k-82 kOhms | 120 | R 7108 |
| Pack F | 100k-820 kOhms | 120 | R 7110 |
| Pack G | 1M-10 MOhms | 130 | R 7112 |

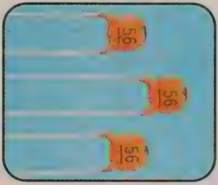
$\$4^{95}$ ea



## CAPACITOR PACKS

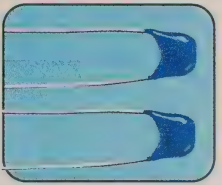
### 60 piece Ceramic Pack

This pack contains quality 50V Ceramic Capacitors in specially selected common values from 1.5pf to 0.0056µf.
R 7050 $\$9^{95}$



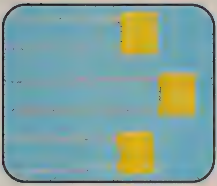
### 50 piece Monolithic

Ceramic pack high stability 0.1µf, 50V. Commonly used in by-pass and coupling circuits.
R 7062 $\$14^{95}$



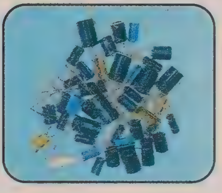
### 65 piece MKT Polyester Pack

This value pack contains mixed MKT capacitors from 0.001µf to 0.47µf in 5.08mm leg spacing. 5% 100wv/63wv MKT capacitors.
R 7070 $\$16^{95}$



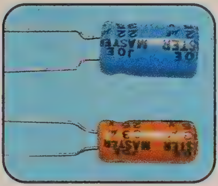
### 55 piece Electrolytic Pack

Quality single-ended (RB) electrolytics from 2.2µF to 470µF and in 10V to 25V. All are rated at 85°C.
R 7030 $\$12^{95}$



### 100 piece Electrolytic Pack

This great value pack contains mixed RB Electrolytics from 0.1uF to 100uF and in mixed voltages up to 50V. All are rated at 85°C.
R 7037 $\$18^{95}$



WHOLESALE DIVISION
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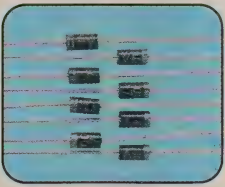
DICK SMITH ELECTRONICS
*That's where you go!*
DIRECT SALES

## DIODE PACKS

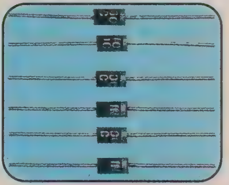
### 50 Piece 1N4004 Rectifier Diode Pack

400V 1A Rectifier Diodes in a bulk pack for more savings.
Z 3012 $\$5^{95}$



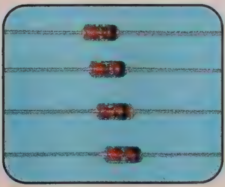
### 100 Piece Rectifier Diode Pack

This contains 100 pieces of 400V 1A 1N4004 rectifier diodes.
Z 3008 $\$8^{95}$



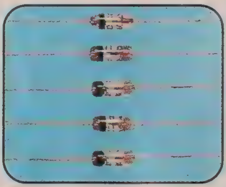
### 100 Piece Signal Diode Pack

Each pack contains 100 pieces industrial standard 1N4148 small signal Silicon Diodes
Z 3006 $\$4^{95}$



### 100 Piece Mixed Signal Diode Pack

Each pack contains:
25 x 1N60, 5 x 0A47 and 70 x 1N4148 Silicon and Germanium Signal Diodes.
*Z 3005 $10
***Limited Stocks**

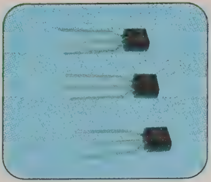


## TRANSISTORS

### 100 Piece Signal Transistors

Each pack has: 20 of each BC547, BC548, BC549, 15 of each BC557 and BC558 and 10 x BC559.
Z 3000

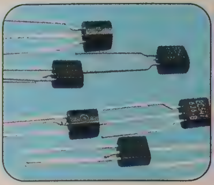
**$19.95**



### 50 Piece Signal Transistors

50 piece pack consisting of: 11 of each BC547, BC548, BC549, 6 of each BC557 and BC558 and 5 x BC559.
Z 3002

**$10.50**

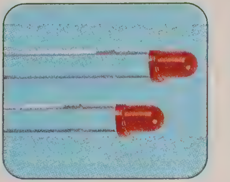


## 3mm LED PACKS

### 50 Piece 3mm Red LED Pack

High efficiency 3mm Round LEDs. Diffused lens, with consistent output, colour, shape and size. Electrical rating: 2.1v @20mA, Intensity: 2mcd.
Z 3009

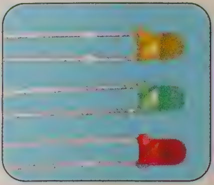
**$12.20**



### 50 Piece 3mm Mixed Colour LED Pack

High efficiency 3mm round LED's. Each pack contains 30x Red, 10x Green, 5x Yellow, 5x Orange. Luminous Intensity- Red: 2mcd, Green: 6mcd, Yellow: 5mcd, Orange: 5mcd.
Z 3019

**$12.70**

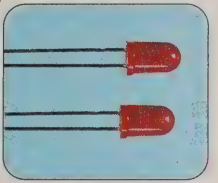


## 5mm LED PACKS

### 50 Piece Red LED Pack(Diffused Red)

High efficiency 5mm LED's in a convenient 50 piece pack. Luminous intensity 3mcd. Forward voltage: 2.1V.
Forward Current: 15mA.
Viewing Angle 40°.
Wavelength: 697nm.
Z 3011

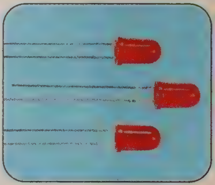
**$13.60**



### 100 Piece Red LED Pack(Diffused Red)

High efficiency quality 5mm round LED's with consistent colour and illumination. Lens type: Diffused Red
Forward voltage: 2.1V DC.
Luminous intensity: 3mcd.
Forward Current: 2.5mA.
Viewing Angle 40°.
Dominant Wavelength: 621nm.
Z 4084

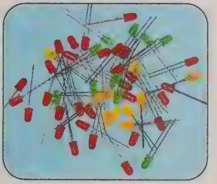
**$25.90**



### 50 Piece Mixed Colour Pack

A pack of quality LED's in a value pack. Each pack contains 30x red, 10x green, 5x yellow and 5x orange LED's.
Luminous intensity-
Red: 3mcd
Green: 10mcd
Orange: 10mcd
Yellow: 8mcd
Z 3018

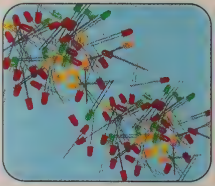
**$14.80**



### 100 Piece Mixed Colour Pack

Each pack has: 60 x Red, 20 x Green, 10 x Yellow and 10 x Orange.
Luminous intensity-
Red: 3mcd
Green: 10mcd
Orange: 10mcd
Yellow: 8mcd
Z 3015

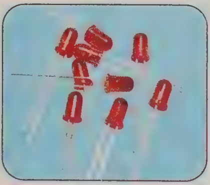
**$26.60**



### Pack of 50 Bright Red

Luminous Intensity: 90mcd. Viewing Angle: 40°. Forward Voltage: 2VDC. Forward Current: 25mA. Dominant Wavelength: 621nm. Lens Type: Translucent Red.
Z 7060

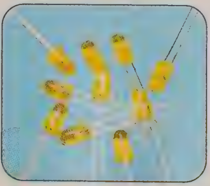
**$12.95**



### Pack of 50 Bright Yellow

Luminous Intensity: 60mcd. Viewing Angle: 40°. Forward Voltage: 2.1VDC. Forward Current: 25mA. Dominant Wavelength: 588nm. Lens Type: Translucent Yellow.
Z 7068

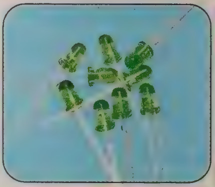
**$12.95**



### Pack of 50 Bright Green

Luminous Intensity: 60mcd. Viewing Angle: 40°. Forward Voltage: 2.1VDC. Forward Current: 25mA. Dominant Wavelength: 569nm. Lens Type: Translucent Green.
Z 7064

**$12.95**

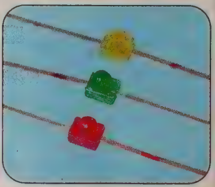


## SMD LED PACK

### 50 Piece Mixed Colour Axial Leaded SMD LEDs

A great opportunity to gain some practical hands-on experience in handling SMD devices. This pack contains 1.8mm sized diffused lens SMD LEDs with axial leads to aid in soldering. Each pack is supplied with 20 x red, 20 x green and 10 x yellow. Data included.
Z 7100

**$16.20**



## GENERAL TRANSISTORS

| Cat No | Description | Price |
|---|---|---|
| Z 1000 | PN 100 G/P Amp/Switch NPN T092 | $0.50 |
| Z 1300 | BC 547 Small Signal Amp NPN | $0.35 |
| Z 1308 | BC 548 Small Signal Amp NPN | $0.30 |
| Z 1319 | BC 549 Low Noise S/S Amp NPN | $0.30 |
| Z 1340 | BC 557 Gen Purpose S/S PNP | $0.35 |
| Z 1348 | BC 558 Gen Purpose S/S PNP | $0.35 |
| Z 1350 | BC 546 Small Signal Amp NPN | $0.30 |
| Z 1352 | BC 556 Small Signal Amp PNP | $0.45 |
| Z 1359 | BC 559 Gen Purpose S/S PNP | $0.35 |
| Z 1388 | BC 639 Audio Output NPN | $0.80 |
| Z 1389 | BC 640 Audio Output PNP | $0.80 |
| Z 1443 | BD 139 Gen Purpose Output NPN | $1.55 |
| Z 1444 | BD 140 Gen Purpose Output PNP | $1.55 |
| Z 1460 | BD 682 Darlington Output PNP | $1.35 |
| Z 1462 | BD 681 Darlington Output NPN | $2.35 |
| Z 1635* | BF 469 Gen Purp Hi-V Amp NPN | $1.35 |
| Z 1636* | BF 470 Gen Purp Hi-V Amp PNP | $1.35 |
| Z 1800 | MJ 2955 Hi-Power Output PNP | $3.95 |
| Z 1804 | 2N 3055 Output/Switch NPN T03 | $3.95 |
| Z 1805 | MJ10012 400V/175W/10A Pwr NPN | $12.60 |
| Z 1808 | MJ15003 140V/250W/20A GP NPN | $10.70 |
| Z 1810 | MJ15004 140V/250W/20A GP PNP | $10.70 |
| Z 1900* | 2N 5401 Hi-Voltage Switch PNP | $0.50 |
| Z 2000 | PN 200 Gen Purpose Amp/Sw PNP | $0.35 |
| Z 2005 | ME 2955T GP Power PNP (T0220) | $2.45 |
| Z 2008 | MJE 3055T GP Power NPN (T0220) | $2.45 |
| Z 2010 | MJE 340 GP High Pwr T0126 NPN | $2.25 |
| Z 2012 | MJE 350 G High Pwr T0126 PNP | $2.25 |
| Z 2020 | TIP 31B/C Power Transistor NPN | $2.60 |
| Z 2024 | TIP 32B/C Power Transistor PNP | $2.60 |
| Z 2034* | Tip125 D/lington 60V 8A PNP | $1.25 |
| Z 2065 | PN 2907 Hi Speed Sw T/sistr PNP | $0.55 |
| Z 2068* | 2N 3019 HF Amp Transistor NPN | $2.00 |
| Z 2069 | 2N 2222A/ PN 2222A H/Sp Sw NPN | $0.75 |
| Z 2070 | 2N 3904 Low Level Amp T092 NPN | $0.40 |
| Z 2076* | 2N 5551 SS Sw 180V 600mA NPN | $0.25 |
| Z 2080* | MPSA06 SS 80V 500mA T092 NPN | $0.25 |
| Z 2083* | MPSA56 SS 80V 500mA T092 PNP | $0.25 |
| Z 2084 | MPSA63 D/lington 30V 500mA PNP | $0.25 |
| Z 2086 | MPSA 14 Darlington T/sistr NPN | $0.70 |
| Z 2088 | MPSA 65 Darlington T/sistr PNP | $0.70 |
| Z 2150* | BUX 80 Hi-Current 10A Sw NPN | $4.80 |
| Z 2180 | PN 3563 IF Amp & Assist RF NPN | $0.80 |
| Z 2190 | BC 337 Output Amp NPN T/sistor | $0.45 |
| Z 2240 | BC 327 Output Amp PNP T/sistor | $0.45 |
| Z 2242 | BC 328 Output Amp PNP T/sistor | $0.45 |
| Z 2252 | BC 338 Output Amp NPN T/sistor | $0.45 |
| Z 2326 | PN4258 Saturated Switch PNP | $0.50 |
| Z 2342 | FET 2N 5457 N-Ch Low Noise | $2.40 |
| Z 2512* | 2SC 710 Gen Purpose RF Amp NPN | $0.60 |
| Z 6005* | 2SC1674 RF Amp FT 1.2 GHz NPN | $1.25 |
| Z 6006 | 2SC3355 6.5GHz UHF SS NPN | $1.45 |

*Limited stocks available

## FETs

| Cat No | Description | Price |
|---|---|---|
| Z 1820* | MOSFET VN10KM Low Power N-Ch | $3.50 |
| Z 1853 | MOSFET 60N06 60A 60V N-Ch Pwr | $10.70 |
| Z 1855 | MOSFET MTP6N60E 600V N-Ch Pwr | $10.70 |
| Z 1870 | MOSFET IRFP450 500V 14A N-Ch | $14.90 |
| Z 2132 | MTP 3055E N-Ch Pwr 60V12A TMOS | $3.75 |
| Z 1832 | FET MPF102 N-Ch Junction VHF | $2.00 |

## SIGNAL DIODES

| Cat No | Description | Price |
|---|---|---|
| Z 3120 | Diode 1N4148 Small Signal | $0.20 |
| Z 3230* | Diode 5082-2800 HotCr Schottky | $2.80 |
| Z 3231 | Diode 1N5711 Ultra Fast Switch | $1.45 |
| Z 3250 | Diode 1N5819 40V 1A Schottky | $0.60 |
| Z 3252 | Diode 1N5822 40V 3A Schottky | $1.55 |
| Z 3040 | Diode 1N60 Germanium AM Signal | $0.80 |

## RECTIFIER DIODES

| Cat No | Description | Price |
|---|---|---|
| Z 3204 | Diode 1N4004 400V 1A Rectifier | $0.20 |
| Z 3207 | Diode 1N4007 1kV 1A Rectifier | $0.25 |
| Z 3222 | Diode 1N5404 400V 3A Rectifier | $0.60 |
| Z 3228 | Diode 1N5408 1kV 3A Rectifier | $0.90 |
| Z 3229 | Diode 6A10 1kV 6Amp Rectifier | $2.15 |
| Z 3243 | Diode BYX98 600V 10A Rectifier | $10.20 |

## BRIDGE RECTIFIERS

| Cat No | Description | Price |
|---|---|---|
| Z 3304 | Bridge Rectifier W04 400V 1.5A | $1.20 |
| Z 3300 | Bridge Rect DB155G 600V 1.5A DIP | $1.35 |
| Z 3308 | Bridge Rectifier 2W06 600V 2A | $1.60 |
| Z 3310 | Bridge Rect KBL10/407 SIL 1kV 4A | $4.95 |
| Z 3306 | Bridge Rectifier P04 400V 6A | $4.20 |
| Z 3333 | Bridge Rect KBPC804 400V 8 Amp | $5.30 |
| Z 3335 | Bridge Rect KBPC2508 800V 25A | $10.95 |
| Z 3336 | Bridge Rect KBPC3504 400V 35A | $10.40 |
| Z 3350 | Bridge Rect FB5006 600V 50A | $22.60 |

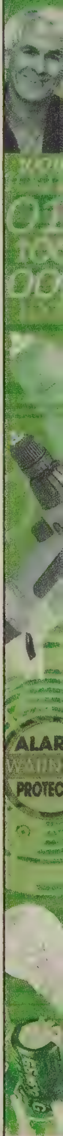
## 400mW ZENER DIODES

| Cat No | Description | Price |
|---|---|---|
| Z 3401 | Zener 400mW 3V3 1N746A/1N5226B | $0.40 |
| Z 3402* | Zener 400mW 3V9 1N748A/1N5228B | $0.20 |
| Z 3403 | Zener 400mW 4V7 1N750A/1N5230B | $0.40 |
| Z 3405 | Zener 400mW 5V1 1N751A/1N5231B | $0.40 |
| Z 3407 | Zener 400mW 5V6 1N752A/1N5232B | $0.40 |
| Z 3409 | Zener 400mW 6V2 1N753A/1N5234B | $0.40 |
| Z 3411 | Zener 400mW 6V8 1N754A/1N5235B | $0.40 |
| Z 3412* | Zener 400mW 7V5 1N755A/1N5236B | $0.20 |
| Z 3413 | Zener 400mW 10V 1N758A/1N5240B | $0.40 |
| Z 3414 | Zener 400mW 8V2 1N756A/1N5237B | $0.40 |
| Z 3416 | Zener 400mW 9V1 1N757A/1N5239B | $0.40 |
| Z 3415 | Zener 400mW 12V 1N759A/1N5242B | $0.45 |
| Z 3417 | Zener 400mW 15V 1N965A/1N5245B | $0.45 |
| Z 3419* | Zener 400mW 18V 1N967A/B NZ | $0.20 |
| Z 3427 | Zener 400mW 27V 1N971A/B W270 | $0.05 |

## 1W ZENER DIODES

| Cat No | Description | Price |
|---|---|---|
| Z 3515 | Zener 1W 3V3 1N4728/BZX85C3V3 | $0.60 |
| Z 3519 | Zener 1W 3V9 1N4730/BZX85C3V9 | $0.60 |
| Z 3523 | Zener 1W 4V7 1N4732/BZX85C4V7 | $0.60 |
| Z 3525 | Zener 1W 5V1 1N4733/BZX85C5V1 | $0.60 |
| Z 3527 | Zener 1W 5V6 1N4734/BZX85C5V6 | $0.60 |
| Z 3529 | Zener 1W 6V2 1N4735/BZX85C6V2 | $0.60 |
| Z 3531 | Zener 1W 6V8 1N4736/BZX85C6V8 | $0.60 |
| Z 3533 | Zener 1W 7V5 1N4737/BZX85C7V5 | $0.60 |
| Z 3535 | Zener 1W 8V2 1N4738/BZX85C8V2 | $0.60 |
| Z 3537 | Zener 1W 9V1 1N4739/BZX85C9V1 | $0.60 |
| Z 3539 | Zener 1W 10V 1N4740/BZX85C10 | $0.60 |
| Z 3543 | Zener 1W 12V 1N4742/BZX85C12 | $0.70 |
| Z 3547 | Zener 1W 15V 1N4744/BZX85C15 | $0.70 |
| Z 3549 | Zener 1W 16V 1N4745/BZX85C16 | $0.70 |
| Z 3551 | Zener 1W 18V 1N4746/BZX85C18 | $0.70 |
| Z 3553 | Zener 1W 20V 1N4747/BZX85C20 | $0.70 |
| Z 3557 | Zener 1W 24V 1N4749/BZX85C24 | $0.70 |
| Z 3559* | Zener 1W 27V 1N4750 | $0.20 |
| Z 3561 | Zener 1W 30V 1N4751/BZX85C30 | $0.70 |
| Z 3563 | Zener 1W 33V 1N4752/BZX85C33 | $0.70 |
| Z 3565* | Zener 1W 36V 1N4753A/BZX85C36 | $0.20 |
| Z 3567* | Zener 1W 39V 1N4754A | $0.20 |
| Z 3575* | Zener 1W 56V 1N4758A | $0.20 |
| Z 3583 | Zener 1W 75V 1N4761A/BZX85C75 | $0.70 |

*Limited stocks available



## VOLTAGE REGULATORS

| Cat No | Description | Price |
|---|---|---|
| Z 6545 | LM 7805CT +5V 1A V/Regulator | $2.00 |
| Z 6553 | LM 7808CT +8V 1A V/Regulator | $2.10 |
| Z 6550 | LM 7809CT +9V 1A V/Regulator | $2.20 |
| Z 6552 | LM 7812CT +12V 1A V/Reg T0220 | $2.25 |
| Z 6554 | LM 7815CT +15V 1A V/Regulator | $2.35 |
| Z 6547 | LM 7824CT +24V 1A V/Regulator | $2.95 |
| Z 6555 | LM 7905CT -5V 1A V/Regulator | $2.00 |
| Z 6556 | LM 7912CT -12V 1A V/Regulator | $2.25 |
| Z 6557 | LM 7915CT -15V 1A V/Regulator | $2.35 |
| Z 6600 | LM 2940T-5 +5V 1A LDO Regulator | $3.95 |
| Z 6601 | LM 1117V50 +5V 800mA LDO Reg | $3.75 |
| Z 6602 | LM 2940T-9 +9V 1A LDO Regulator | $4.85 |
| Z 6606 | LM 2940T-12 12V 1A LDO V/Reg | $4.55 |
| Z 6620 | LM 2941CT +ve Adj LDO V/Reg | $4.95 |
| Z 6622 | LD 1117V +VE Adj LDO Regulator | $4.95 |
| Z 6058 | LM 337T Adj 1.5A -ve Regulator | $4.55 |
| Z 6541 | LM 317T 1.2-37V 1.5A Adj V/Reg | $3.40 |
| Z 6546* | LM 304 30V 25mA Adj V/Regulator | $0.50 |
| Z 6561 | LM 350T 1.2-32V 3A Adj V/Reg | $12.95 |
| Z 6108 | LM 78L05CZ +5V 100mA V/Reg | $1.95 |
| Z 6110 | LM 78L12CZ +12V 100mA V/Reg | $1.95 |
| Z 6111 | LM 78L15CZ +15V 100mA V/Reg | $2.05 |
| Z 6567* | LM 79L05 -ve 5V 100mA Volt/Reg | $0.45 |
| Z 6568* | LM 79L12 -ve 12V 100mA Voltage | $0.45 |
| Z 6538 | KA 317LZ 1.2-37V 100mA Low Pwr | $2.60 |

*Limited Stocks

## COMPARATORS

| Cat No | Description | Price |
|---|---|---|
| Z 6039 | Comparator LM 339N Quad Voltage | $1.60 |
| Z 6048 | Comparator LM 311N Voltage DIP | $1.55 |
| Z 6049 | Comparator LM 319N High Speed | $5.00 |
| Z 6087 | Comparator LM 393 Dual | $1.70 |

## UJTs, SCRs, DIACS, TRIACS

| Cat No | Description | Price |
|---|---|---|
| Z 1780* | 2N 6027 Programmable UJT T092 | $1.35 |
| Z 4310 | SCR BT169B/169D/C103B 200V .8A | $2.20 |
| Z 4320 | SCR C106D/TYN404 400V 4Amps | $2.70 |
| Z 4332 | SCR C122E 500V/TYN608 600V 8A | $4.95 |
| Z 4333 | SCR TYN816 800V 16A T0220 Case | $5.40 |
| Z 4510 | Triac SC141D 400V 6A T0220 | $4.30 |
| Z 4515 | Triac BTA10-600B 600V 10A I/tb | $4.95 |
| Z 4520 | Triac BT139-600 600V 16A T0220 | $6.95 |
| Z 4516 | Triac Driver MOC3021 Opto-Isol | $4.95 |
| Z 4710 | Diac BR100-03 Triac Trigger | $2.25 |

## OPERATIONAL AMPLIFIERS

| Cat No | Description | Price |
|---|---|---|
| Z 6021* | Op Amp TLC251 Low-Power (CMOS) | $2.80 |
| Z 6023* | Op Amp LM627 Precision L/Noise | $4.00 |
| Z 6024* | Op Amp CA 3080 Transconductance | $4.00 |
| Z 6025* | Op Amp CA3130T MOSFET T05 | $2.80 |
| Z 6029 | Op Amp LM 358N Low Power Dual | $1.25 |
| Z 6030 | Op Amp TL071CP (TI) JFET MOS | $2.90 |
| Z 6032 | Op Amp TL072CP TI/ST JFET MOS | $3.95 |
| Z 6034 | Op Amp TL074CP (T.I.) JFET MOS | $3.95 |
| Z 6062 | Op Amp TL084 Quad Bifet NZ | $3.40 |
| Z 6084* | Op Amp LM10CLN Low-Voltage Ref | $2.95 |
| Z 6088 | Op Amp LM 833 Low-Noise Dual | $5.65 |
| Z 6090 | Op Amp NE 5534 Low-Noise U/C | $4.35 |
| Z 6102 | Op Amp LM324N Lo-Pwr Comp Quad | $1.35 |
| Z 6113* | Op Amp LM 13600N Dual Buff T/C | $4.00 |
| Z 6375* | Op Amp LM 614 Volt Ref Quad | $1.00 |
| Z 6382 | Op Amp LM 741 Gen Purpose TTL | $1.75 |

*Limited Stocks

## POWER AMPLIFIERS

| Cat No | Description | Price |
|---|---|---|
| Z 6070 | Pwr Amp Stereo TDA2822M 1 Watt | $3.45 |
| Z 6080 | Pwr Amp Audio LM380N-14 5W RMS | $4.95 |
| Z 6086 | AF Amp LM 386N 1.6W High Gain | $3.20 |
| Z 6115 | Pwr Amp Audio LM 1875T 30W RMS | $14.65 |

## TIMERS

| Cat No | Description | Price |
|---|---|---|
| Z 6144 | Timer TLC555/ICM7555 CMOS IC | $2.65 |
| Z 6145 | Timer DS555/LM555CN/NE555 TTL | $1.75 |
| Z 6146 | Timer NE556/LM556CN TTL Dual | $2.65 |

## RADIO/TV/RF/DEVICES

| Cat No | Description | Price |
|---|---|---|
| Z 2610* | LM3361AN N/Band FM/IF Detector | $2.00 |
| Z 5415* | MC10116P Trip VHF ECL Diff Amp | $1.40 |
| Z 5460 | Decoder DTMF MC145436 CMOS IC | $13.95 |
| Z 6525 | Radio IC MK484 AM Tuner RF | $1.85 |

*Limited Stocks

## CRYSTALS

| Cat No | Description | Price |
|---|---|---|
| Z 6031 | Crystal 3.579545 MHz for Z 5460 | $5.25 |
| Z 9900 | Crystal 4.0 MHz in HC-49U Pack | $5.95 |
| Z 9910 | Crystal 10.0 MHz in HC-49U Pack | $5.95 |

## LINEAR DEVICES

| Cat No | Description | Price |
|---|---|---|
| Z 2511* | XR2211 PLL FSK Demodulator | $4.95 |
| Z 6050 | Sensor LM 335H Precision Temp | $7.15 |
| Z 6051 | Sensor LM 335Z Temperature | $5.85 |
| Z 6203* | UM3561A Siren/Sound Generator | $2.00 |
| Z 6282 | ULN2802A 8-Way Darl 5V TTL Inp | $4.95 |
| Z 6295 | LM 3914 10 LED B/Graph Drv LIN | $8.95 |
| Z 6828 | ADC0831CCN 8-bit Serial ADC | $5.85 |
| Z 6834 | DAC0800LCN 8-Bit Digital DAC | $3.60 |
| Z 6840* | 78S40 Switching Regulator System | $2.00 |

*Limited Stocks

## HALL EFFECT SENSOR

| Cat No | Description | Price |
|---|---|---|
| Z 2620 | Sensor UGN3503U Hall Effect | $4.75 |

## MICROCONTROLLERS

| Cat No | Description | Price |
|---|---|---|
| Z 9168 | PIC 12C508 Microcontroller | $7.20 |
| Z 9170 | PIC 12C509 Microcontroller | $7.30 |
| Z 9175 | PIC 16F84-04 Microcontroller | $14.50 |
| Z 9205 | AT90S8535-8PC Microcontroller | $26.50 |

## MEMORY ICs

| Cat No | Description | Price |
|---|---|---|
| Z 9356 | 27C256-10 32KX8 100NS EPROM | $14.40 |
| Z 9359 | 27C512-90 64KX8 90NS EPROM | $15.60 |

## LSI & SPECIAL DIGITAL

| Cat No | Description | Price |
|---|---|---|
| Z 5369 | MAX 232 (Maxim) RS232 Tx/Rx IC | $13.60 |
| Z 5370 | DS1488 RS232 Quad Line Driver | $1.95 |
| Z 5371 | DS1489/SN75189An RS232C Q/L Rx | $1.95 |
| Z 5380 | UA9667PC/DS2003CN 7-Way Darl | $3.15 |
| Z 5414* | 74C926 4 Digit/Driver Counter | $10.00 |
| Z 6107 | LM 3046N 5 Monolithic NPN Xtrs | $1.95 |
| Z 6831 | TLC548CP 8-Bit Serial ADC CMOS | $7.20 |

## 4000 SERIES

| Cat No | Description | Price |
|---|---|---|
| Z 5601 | 4001 NOR Gate Quad 2-Input CMS | $1.15 |
| Z 5602 | 4002 NOR Gate Dual Quad Input | $1.15 |
| Z 5607 | 4007 Dual Comple Pair & Invert | $1.65 |
| Z 5609 | 4009 Hex Invert Buff/Lvr Shift | $1.65 |
| Z 5611 | 4011 NAND Gate Quad 2-Input | $1.00 |
| Z 5612 | 4012 NAND Gate Dual Quad Input | $1.00 |
| Z 5613 | 4013 Dual D Edge Trig Flip Flop | $1.25 |
| Z 5615 | 4015 Shift Regist Dual 4 Stage | $2.25 |
| Z 5616 | 4016 Quad Analog Switch CMOS | $1.75 |
| Z 5617 | 4017 Decade Counter/Divider | $2.00 |
| Z 5619 | 4019 Quad AND/OR Select Gate | $1.75 |
| Z 5620 | 4020 14-Bit Binary Counter | $2.50 |
| Z 5621 | 4021 Shift Register 8-Bit CMOS | $1.80 |
| Z 5622 | 4022 Counter Div by 8 (1 of 8) | $1.00 |
| Z 5623 | 4023 NAND Gate Trip 3-Input | $0.95 |
| Z 5624 | 4024 Bin Counter 7-Stage Rippl | $1.95 |
| Z 5625 | 4025 NOR Gate Triple 3-Input | $1.45 |
| Z 5626* | 4026 Dec Counter/7 Seg Divider | $3.00 |
| Z 5627 | 4027 Flip Flop Dual J-K In/Clk | $1.80 |
| Z 5629 | 4029 Sych Up/Dwn Bnry/Dec Coun | $2.40 |
| Z 5630 | 4030 OR Gate Quad Exclusive | $1.60 |
| Z 5640 | 4040 Binary Counter 12-Stage | $1.90 |
| Z 5644 | 4044 FlipFlop R/S Quad 3-State | $1.80 |
| Z 5646 | 4046 PLL Phase Locked Loop | $2.95 |
| Z 5647* | 4047 Multivibrator Mono/Astabl | $1.55 |
| Z 5649 | 4049 Buffer Hex Inverting | $1.55 |
| Z 5650 | 4050 Buffer Hex Non-Inverting | $1.55 |
| Z 5651 | 4051 8-Channel Analogue M/D | $2.20 |
| Z 5666 | 4066 Quad Bilateral Switch | $1.60 |
| Z 5668 | 4068 NAND Gate 8-Input | $0.95 |
| Z 5669 | 4069/MM74C04 Hex Inverter | $1.35 |
| Z 5671 | 4071 OR Gate Quad 2-Input | $1.25 |
| Z 5673 | 4073 AND Gate Triple 3-Input | $1.20 |
| Z 5681 | 4081 AND Quad 2-Input Buffered | $1.20 |
| Z 5682 | 4082 AND Gate Dual 4-Input | $1.45 |
| Z 5692 | 4094 8-Stge Shft & Store Regis | $2.75 |
| Z 5693 | 4093 NAND Quad 2 Inp S/Trigger | $1.25 |
| Z 5694* | 40194 4-Bit Bidir Uni/Shft Reg | $0.95 |
| Z 5695* | 40175/74C175 Common Quad | $0.95 |
| Z 5721* | 4501 Triple Gate NAND-NOR-AND | $0.95 |
| Z 5730 | 4511 BCD 7 Seg Latch/Decode Dr | $2.30 |
| Z 5732* | 4512 8-Channel Multiplexer | $1.00 |
| Z 5737 | 4514 4-16 Line Decoder (24 pin) | $4.05 |
| Z 5738 | 4516 Binary Up/Dwn Countr CMOS | $2.75 |
| Z 5740 | 4518 Dual BCD Counter | $2.55 |
| Z 5742 | 4520 Counter Dual Sync Div by 1 | $1.65 |
| Z 5744* | 4526 4-Bit Prog Down Counter | $0.95 |
| Z 5748 | 4528 Dual Monostable Multivbr | $2.15 |
| Z 5758 | 4538 Dual Monostable Multivbr | $2.85 |
| Z 5760* | 4541 16-Stage Binary Counter | $2.00 |
| Z 5761* | 4543 BCD-7 Seg Latch/Decode/Dr | $0.95 |
| Z 5767 | 4584 Hex Schmitt Trigger | $2.15 |

*Limited Stocks

## 74 SERIES

| Cat No | Description | Price |
|---|---|---|
| Z 5210* | 7490 Decade Counter | $0.95 |

## 74HC SERIES

| Cat No | Description | Price |
|---|---|---|
| Z 5410* | 74C00 NAND Gate Quad 2 Input | $0.50 |
| Z 5413 | 74C14/40106 Hex Schmitt Trigger | $2.30 |
| Z 5800* | 74HC00 NAND Quad 2-Input +ve | $0.95 |
| Z 5802 | 74HC02 NOR Quad 2-Input +ve | $0.95 |

## 74HC SERIES

| Cat No | Description | Price |
|---|---|---|
| Z 5804 | 74HC04 High Speed Hex Inverter | $0.95 |
| Z 5805* | 74HC05 Hex Inverter Open Drain | $0.25 |
| Z 5808 | 74HC08 AND Quad 2-Input +ve | $0.95 |
| Z 5811* | 74HC11 AND Triple 3-Input +ve | $0.95 |
| Z 5814 | 74HC14 Hex Schmitt-Trig Invtr | $1.35 |
| Z 5827* | 74HC27 NOR Triple 3-Input +ve | $0.50 |
| Z 5830* | 74HC30 NAND Gate 8-Input +ve | $0.50 |
| Z 5832 | 74HC32 OR Gte Quad 2-Input +ve | $0.95 |
| Z 5874 | 74HC74 Flip Flop Dual D Edg Trg | $1.25 |
| Z 5885* | 74HC85 4-Bit Mag Comparator | $0.90 |
| Z 5886* | 74HC86 OR Quqd 2-Input Exclus | $2.00 |
| Z 5910* | 74HC123 Dual Re-trg Monostable | $2.00 |
| Z 5911* | 74HC125 Quad Buffr 3-State Out | $0.25 |
| Z 5915* | 74HC138 3 of 8 Decoder/Multiplex | $0.90 |
| Z 5920 | 74HC139 Dual 2-4 Decoder/Multiplex | $0.95 |
| Z 5924* | 74HC154 Decoder/Demultiplexer | $2.00 |
| Z 5925 | 74HC157 Quad 2-Input Multiplexer | $2.45 |
| Z 5929* | 74HC161 Sync 4-Bit Dec & Bin | $2.00 |
| Z 5930* | 74HC165 8-Bit Parallel-Serial | $2.20 |
| Z 5935* | 74HC174 Hex D-Type Flip Flop | $2.00 |
| Z 5939* | 74HC193 Sync 4-Bit U/D Counter | $2.00 |
| Z 5940* | 74HC221 Dual Mono Multivibrator | $0.95 |
| Z 5945 | 74HC240 Octal Buffer/Line Driver | $1.95 |
| Z 5950* | 74HC244 Octal Buffer/Line Driver | $1.95 |
| Z 5955 | 74HC245 Octal Bus Transceiver | $1.95 |
| Z 5960 | 74HC367 Hex Bus 3-State Buffer | $1.95 |
| Z 5965 | 74HC373 Octal T/parent Latch | $2.85 |
| Z 5982 | 74HC595 8-Bit Serial-Parallel | $3.65 |
| Z 5990* | 74HC4066 Quad Bilat Analog Sw | $1.00 |

*Limited Stocks

## 74LS SERIES

| Cat No | Description | Price |
|---|---|---|
| Z 4901* | 74LS02 NAND Quad 2-Input O/C | $0.25 |
| Z 4902* | 74LS02 NOR Quad 2-Input +ve | $0.25 |
| Z 4903* | 74LS03 NAND Quad Open Collector | $0.25 |
| Z 4905 | 74LS-5 Hex Inverter O/C Output | $0.95 |
| Z 4910 | 74LS10 NAND Triple Input +ve | $0.95 |
| Z 4912 | 74LS11 AND Triple 3 Input +ve | $0.95 |
| Z 4913 | 74LS13 NAND Dual 4-In Schm Trg | $0.50 |
| Z 4914* | 74LS14 Hex Schmitt Trigger Inv | $0.95 |
| Z 4920* | 74LS20 NAND Dual 4-Input +ve | $0.25 |
| Z 4924* | 74LS21 NAND Dual 4-Input +ve | $0.25 |
| Z 4927 | 74LS27 NOR Triple 3-Input +ve | $0.50 |
| Z 4930 | 74LS30 NAND Gate 8-Input +ve | $0.50 |
| Z 4931* | 74LS31 Delay Elements | $0.25 |
| Z 4937* | 74LS37 NAND Buffr Quad 2-Input | $0.25 |
| Z 4954 | 74LS54 AND-OR Invtr-Gte 4-Wide | $0.25 |
| Z 4975 | 74LS75 4-Bit Bistable Latch | $0.65 |
| Z 4983 | 74LS83 4 Bit Bin Full Adders | $1.85 |
| Z 4985 | 74LS85 4 Bit Mag Comparator | $0.95 |
| Z 4990* | 74LS90 Div by 5 Decade Counter | $0.95 |
| Z 4995* | 74LS95 4-Bit Para-XS Shft Regi | $0.25 |
| Z 5191* | 74LS191 Sync Bin Up/Down Counter | $0.25 |
| Z 5193* | 74LS193 Sync Bin Up/Down Counter | $0.95 |
| Z 5196* | 74LS196 Decade Divider/Counter | $0.25 |
| Z 5283* | 74LS132 Quad 2-Inp Schmitt Trg | $0.25 |
| Z 5284* | 74LS138 3-8 Decode/Demultiplex | $0.95 |
| Z 5285* | 74LS139 2-4 Decode/Demultiplex | $0.25 |
| Z 5286 | 74LS153 4-1 Data Sel/Multiplex | $0.50 |
| Z 5288* | 74LS165 Par-Load Shift Register | $0.25 |
| Z 5290* | 74LS174 Hex D-Type Flip Flop | $0.25 |
| Z 5291* | 74LS175 Hex/Quad D-Type F/Flop | $0.25 |
| Z 5292* | 74LS367 Hex Bus Dvr 3-Stat OP | $0.95 |
| Z 5294* | 74LS244 Octal Buffr/Line Driver | $1.10 |
| Z 5296* | 74LS221 Dual Monost/Multivbtr | $1.75 |
| Z 5297* | 74LS374 Octal D-Type Flip Flop | $1.75 |

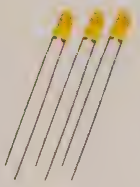
*Limited Stocks

# LEDs

### 3mm Round Premium Quality

| Emitted Colour | Intensity | Cat No. |
|---|---|---|
| Red | 1.7 mcd | Z 4077 |
| Green | 5.6 mcd | Z 4079 |
| Yellow | 5.6 mcd | Z 4081 |
| Orange | 8.7 mcd | Z 4083 |

55¢ea



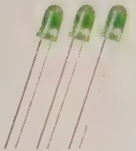
### 5mm Round

| Emitted Colour | Intensity | Cat No. |
|---|---|---|
| Red | 3.8 mcd | Z 4085 |
| Green | 8.7 mcd | Z 4087 |
| Yellow | 8.7 mcd | Z 4089 |
| Orange | 8.7 mcd | Z 4091 |

70¢ea

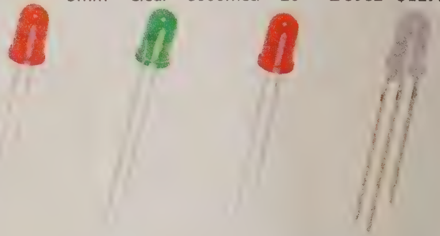
### 10mm Round

| Emitted Colour | Intensity | Cat No. | Price |
|---|---|---|---|
| Red | 33 mcd | Z 4060 | $2.00 |
| Red | 6000 mcd | Z 4067 | $4.20 |
| Green | 7000 mcd | Z 4068 | $7.30 |



### High Intensity/High Brightness Super LEDs

| Emitted Colour | Lens Size | Type | Intensity | θ1/2 | Cat No. | Price |
|---|---|---|---|---|---|---|
| Red | 5mm | Clear | 1000mcd | 12° | Z 4072 | $1.40 |
| Ruby Red | 5mm | Clear | 3600mcd | 12° | Z 4074 | $1.80 |
| Red | 10mm | Clear | 6000mcd | 12° | Z 4067 | $4.20 |
| Sunset Red | 5mm | Clear | 8000mcd | 15° | Z 4031 | $5.20 |
| Amber Yellow | 5mm | Clear | 6500mcd | 15° | Z 4033 | $4.20 |
| Green | 10mm | Clear | 7000mcd | 8° | Z 4068 | $7.30 |
| Green | 5mm | Clear | 10,000mcd | 15° | Z 4013 | $11.20 |
| Green | 5mm | Clear | 14,000mcd | 15° | Z 4015 | $14.40 |
| Blue | 5mm | Clear | 700mcd | 18° | Z 3820 | $4.35 |
| Blue | 5mm | Clear | 1800mcd | 15° | Z 3902 | $6.95 |
| Blue | 5mm | Clear | 3000mcd | 20° | Z 3905 | $9.95 |
| White | 3mm | Clear | 1500mcd | 30° | Z 3800 | $4.35 |
| White | 5mm | Clear | 2000mcd | 13° | Z 3980 | $7.95 |
| White | 5mm | Clear | 5600mcd | 20° | Z 3981 | $10.40 |
| White | 5mm | Clear | 8000mcd | 20° | Z 3982 | $12.45 |



## HEWLETT PACKARD LEDs 3mm

**Super Bright RED**

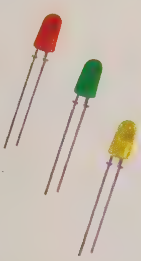
Z 4010 45mcd @ 1.9V 20mA. 45 degree viewing angle. $1.70

**Super Bright GREEN**

Z 4012 45mcd @ 2.2V 20mA. 45 degree viewing angle. $1.70

**Super Bright YELLOW**

Z 4014 45mcd @ 2.1V 20mA. 45 degree viewing angle. $1.70



## HEWLETT PACKARD LEDs 5mm

**Super Bright RED**

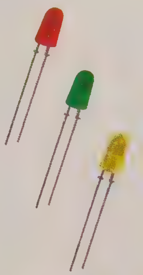
Z 4021 125mcd @ 1.9V 20mA. 24 degree viewing angle. $1.70

**Super Bright GREEN**

Z 4023 140mcd @ 2.2V 20mA. 24 degree viewing angle. $1.70

**Super Bright YELLOW**

Z 4025 140mcd @ 2.1V 20mA. 24 degree viewing angle. $1.70



### 2mm x 5mm Rectangular Thin Flange

| Emitted Colour | Intensity | Cat No. |
|---|---|---|
| Red | 5.1 mcd | Z 4200 |
| Green | 4.3 mcd | Z 4202 |
| Yellow | 4.0 mcd | Z 4204 |

60¢ea

## SPECIAL LEDs

**Flashing 5mm Red**

Z 4040 30mcd @ 3V 20mA. 2Hz flash rate. $1.90

**Flashing 5mm Red LED - 3 to 15V**

Z 4044 390mcd @ 5.0V 20mA. 2.4Hz flash rate. $2.90

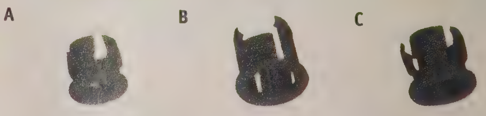
**Flashing 5mm Green LED - 3 to 15 V**

Z 4046 98mcd @ 5.0V 20mA. 2.4Hz flash rate. $2.90

**Dual Colour 5mm LED - Red/Green**

Z 4071 White Lens. 3 leg centre common. $1.90

## LED BEZELS



| | | | |
|---|---|---|---|
| A. | 3mm Clip-on LED Bezel 15 pack | H 1933 | $2.75 |
| B. | 5mm Clip-on LED Bezel 15 pack | H 1934 | $2.75 |
| C. | 5mm Bezel & Ring Collar 15 pack | H 1910 | $2.95 |

## LED DISPLAYS

### 7 Segment Displays

#### Common Anode

| | |
|---|---|
| **8mm Red**<br>19.0 x 10.0 x 5.4mm (LWD)<br>Z 4118 | $\$3^{20}$ |
| **13mm Red**<br>0.5mcd, 17.5 x 12.4 x 7.0mm (LWD)<br>Z 4145 | $4 |
| **13mm Red**<br>8.5mcd, 17.5 x 12.4 x 7.0mm (LWD)<br>Z 4146 | $\$4^{60}$ |

#### Common Cathode

| | |
|---|---|
| **8mm Red**<br>4.5mcd, 19.0 x 10.0 x 5.4mm (LWD)<br>Z 4104 | $\$4^{40}$ |
| **14mm Red**<br>6.0mcd, 19.0 x 12.4 x 8.0mm (LWD)<br>Z 4130 | $\$5^{20}$ |
| **14mm Orange**<br>4.5mcd, 19.0 x 12.4 x 8.0mm (LWD)<br>Z 4133 | $\$5^{20}$ |

### LED Bargraphs

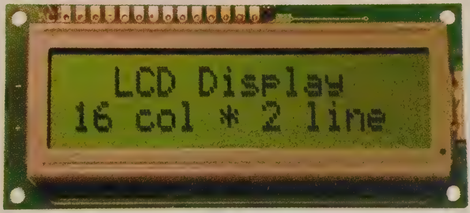
#### Vertical

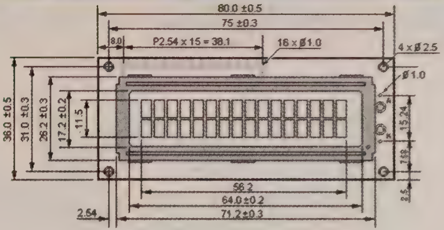
| | |
|---|---|
| **10 Segment Red**<br>2.0mcd, 25.4 x 10.1 x 8.0mm (LWD)<br>Z 4180 | $\$4^{40}$ |
| **10 Segment Green**<br>2.0mcd, 25.4 x 10.1 x 8.0mm (LWD)<br>Z 4182 | $\$4^{40}$ |

#### Horizontal

| | |
|---|---|
| **12 Segment Red**<br>1400mcd, 58.0 x 7.0 x 8.0mm (LWD)<br>Z 4185 | $\$7^{70}$ |
| **12 Segment Green**<br>5600mcd, 58.0 x 7.0 x 8.0mm (LWD)<br>Z 4186 | $\$7^{70}$ |

## LCD DISPLAYS





**Absolute Electrical Maximum Ratings** Vss = 0 Ta = 25

| Parameter | Symbol | Min | Max | Unit |
|---|---|---|---|---|
| Logic Circuit Supply Voltage | $V_{DD}$-Vss | 0 | 7.0 | V |
| LCD Drive Voltage | $V_{DD}$-Vo | 0 | 10 | V |
| Input Voltage | Vi | Vss | $V_{DD}$ | V |
| Operating Temperature | Top | 0 | 50 | ºC |
| Storage Temperature | Tstg | -20 | 70 | ºC |

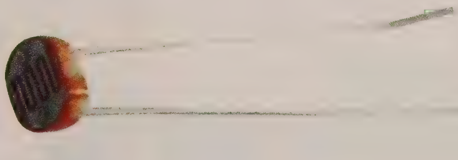
These 16 x 2 display modules consist of a liquid crystal display, CMOS driver and CMOS LSI controller IC. The modules use 5 x 7 dot matrix characters to provide alphanumeric capability, displaying the full 160-character JIS font set. A dedicated on-board controller executes all control, refresh and display functions. Data interfacing is via a 4 or 8-bit bi-directional data bus. By use of simple control commands, data can be selectively written to (or read from) any cursor location. Arbitrary fonts can be written to the character generator RAM.

| | | |
|---|---|---|
| **With Electroluminescent Backlight** | Z 4172 | **$45.60** |
| **Without Backlight** | Z 4170 | **$32.20** |

## OPTO-ELECTRONICS

| | |
|---|---|
| **Phototransistor - Infrared Darlington**<br>Z 1951 NPN Vceo = 35V. Vce = 10V | $\$2^{35}$ |
| **Infrared Buffered Sensor with Lens**<br>Z 1955 Vcc 4.7 -5.3V BPF Centre = 38kHz | $\$8^{40}$ |
| **Infrared Photo Diode Receiver**<br>Z 1956 Rise/Fall Times = 50ns. Max sensitivity @ 950nm | $\$5^{20}$ |
| **Infrared Emitting Diode 5mm**<br>Z 3235 Forward Voltage = 1.2V. Peak Wavelength = 940nm | $\$2^{10}$ |
| **Optocoupler 4N25 / 4N26 / 4N28**<br>Z 4804 Standard LED/Photodiode, 4N25/4N28 | $\$2^{20}$ |
| **MF0E71 Fiber Optic Tx (Blue)**<br>Z 4750* Coupler MF0E71 | $1 |
| **MF0D73 Fibre Optic Receiver (Black)**<br>Z 4752* High Sensitivity Photodarlington Output | $2 |

## LIGHT DEPENDENT RESISTORS



### Light Dependent Resistor

**Specifications:**

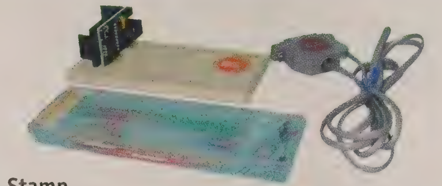
| | |
|---|---|
| Dark Resistance: | Min: 0.5 MOhms Max: 20 MOhms |
| Average Light Resistance: | Min: 60 Ohms Max: 500 OHms |
| Light resistance @ 10 lux: | 140 kOhms |
| Power Dissipation @ 15 deg C: | 50mW |
| Power Dissipation Max: | 100mW |
| Max Voltage (between terminals): | 100VDC |

Z 4801 $\$2^{90}$

## BASIC STAMPS

### The Basic Stamp Board of Education range is the best way to teach yourself programmable electronics.

There's simply no easier microcontroller to use than the BASIC Stamp, hence the name. With over a million in use around the world, its popularity is attributed to its ease of programming, ability to control electronic circuitry and sensors, and proven field reliability. BASIC Stamps create applications and implement ideas. A quick look on the Internet will yield over 60,000 links to projects, suppliers, applications, and discussion about the product. BASIC Stamps are programmed in PBASIC. PBASIC is best described as a high level language (interpreter BASIC) with hardware oriented commands. These commands handle digital I/O, analog I/O and sound control. Other PBASIC commands are focussed on programme structuring. Commands for branching, looping, memory access, and programme debugging are used in conjunction with the hardware commands. Most BASIC Stamps are programmed using an ordinary PC with our DOS or Windows editor and a serial cable.



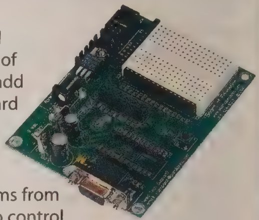
### Ezy Stamp

This is the best value ever and definitely the lowest cost way to start learning about BASIC Stamps. The ezyStamp beginners kit includes the great new ezyStamp microcontroller plus everything you need to get started except the PC. What can it do – Drive motors, speakers, lights, relays, connect with other electronic devices, detect sound, light, heat, magnetism, movement, infrared, radio and ultrasound, record temperature, moisture, light and sound levels (additional componentry may be required for some of the applications listed).

K 1413

**$145**

### Basic Stamp II Board of Education Kit



The BoE was designed to teach microcontroller programming and interfacing for an extensive range of applications. With or without our add on kits, its still an ideal project board for anyone.

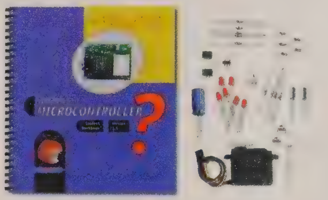
The BASIC Stamp BoE is a surprisingly easy to use microcontroller. It's popularity stems from it's ease of programming, ability to control electronic circuitry and sensors, and it's proven field reliability.

- On board 9V Battery Connector and DC Power Socket
- DB9 connector for Programming and Serial Communication during Run-time
- 16 I/O pins, Vdd, Vss & Vin connections on Breadboard Area
- Application Module Connector • Servo Connectors
- Complete with BS2-IC and Colour Coded Jumper Wires

K 1421

**$299**

### Basic Stamp Introductory Kit

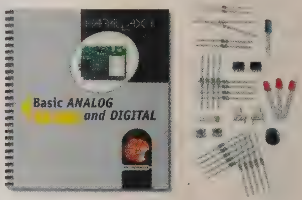


Introductory microcontroller programming tutorial introduces downloading PBASIC code to a BASIC Stamp, building a circuit using a breadboard, and simple circuits with LEDs and pushbuttons. Covers the use of potentiometers, and photoresistors to activate servo movement The tutorial is complete with this kit or available for download from our web site.

K 1424

**$134**

### Basic Stamp Analog and Digital Kit



Covers 8-bit A/D and D/A, resistive ladder networks, op-amps, and frequency. Medium challenge level. This kit teaches the essentials of simple analog to digital with an 8-bit converter, and digital to analog with PBASIC code, the essentials of 8-bit A/D and D/A conversion using a BASIC Stamp. These concepts are conveyed using potentiometers, LEDs, speakers, photoresistors, and buttons. All of this is explained within this kit or is downloadable from our web site.

K 1426

**$129**

### Basic Stamp Industrial Control Kit

PARALLAX
INDUSTRIAL Control

Methods of process control are demonstrated using a simple example consisting of a cannister with a temperature sensor and a heating device. The use of high-voltage electricity to achieve the same concepts is also explained. Utilises StampPlot Lite as a datalogging facility.

K 1425

**$149**

### Basic Stamp Earth Measurements Kit

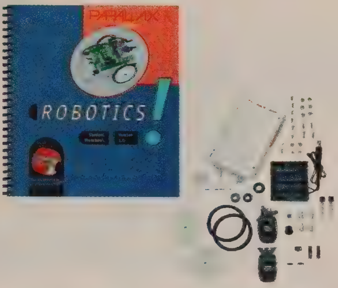
Consists of an environmental data logger that measures air temperature, water temperature, light levels, water levels and electrical conductivity of liquid. Using your Basic Stamp it is now possible to control and log these variables unattended.

K 1416

**$238**

## BASIC STAMPS

### Basic Stamp Robotics Kit



Mount the Board of Education on a robot chassis to learn mechanical control, infrared object detection, light following and avoidance. Medium to high challenge and lots of fun!

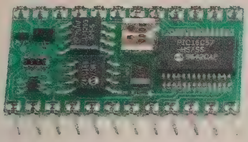
K 1422 **$349**

### Basic Stamp Development Kit

Includes manuals for Stamps 1 and 2, cables for both 1 and 2, programming and software to get you started including Stamp 2 Windows software.

K 1405 **$205**

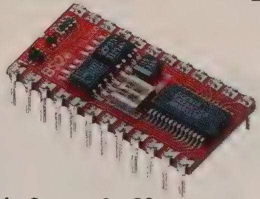
PARALLAX
BASIC STAMP MANUAL



### Basic Stamp 2IC Microcomputer

The BS2-IC is the single most popular BASIC Stamp module. Widely used in educational, hobby, and industrial applications. This module normally has no shortage of program space or I/O pins. Serial PC interface provides enhanced debug features.

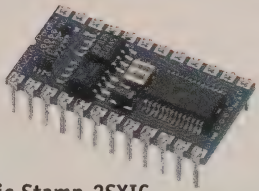
K 1404 **$149**



### Basic Stamp 2e-IC

Using Scenix SX microcontroller, the BS2E-IC runs at the same speed as BASIC Stamp II, but has the RAM and EEPROM size benefits of the BS2SX, but without the speed and power consumption.

K 1417 **$159**

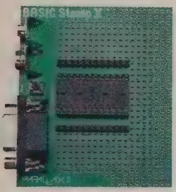


### Basic Stamp 2SXIC

Using Scenix SX microcontroller, the BS2SX-IC provides the highest speed, largest program memory, and fastest serial I/O in the BASIC Stamp family. Great solution for those needing more horsepower than a BS2-IC.

K 1418 **$179**

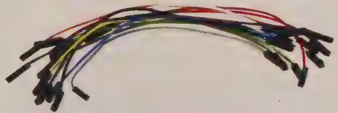
**Customer Order Only**



### Basic Stamp 2 Carrier Board

Connect the Basic Stamp 2 IC to the world with this carrier board. Serial input/output and reset button.

K 1403 **$59.60**



### Basic Stamp Jumper Connectors

These 140mm long jumper connectors are used to program the Basic Stamp Board of Education Products & Carrier Boards. Each end of the lead contains a socket pin which plugs into the square launcher pins on these boards. Multicoloured. 10 pack.

K 1406 **$12.70**

**Also available on customer order**

| | | |
|---|---|---|
| Serial Stepper Motor Controller | K 1427 | $158 |
| Pocket Watch B | K 1429 | $112 |
| FM Transmitter for Telemetry and Remote Control | K 1415 | $79 |
| FM Receiver for Telemetry and Remote Control | K 1414 | $76 |
| Basic Stamp Servos | K 1428 | $48 |

## HOT CHIP

### Hot Chip Starter Pack

It's a must for anyone interested in basic stamps or microcontrollers. *Includes Hot Chip microcontroller (Atmel RISC chip) with 8MHz clock speed, Serial and Parallel cables, quick start manual with hints, and extensive software including Development System, Basic Compiler, Assembler, and on-line help.

K 1430 **$149**

**Limited Stock**

### Hot Chip Mini Boards

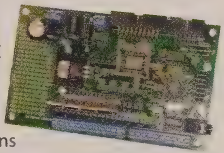
Extension board for the HOT CHIP microprocessor kits. Includes 8kB programmable flash memory, 2x8bit timer/counter, 1x16bit timer/counter, and programmable UART.

K 1431

**$69**

**Limited Stock**

### Hot Chip Maxi Pack



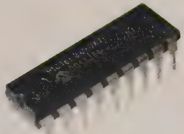
The board employs the Atmel AVR RISC 8535 microcontroller technology. Most instructions are single cycle giving up to 8 million instructions per second on the Hot Chip Boards. The max pack includes serial cable, Parallel cable, CD-ROM incorporating extensive software, Atmel AVR AT90S8535 microcontroller.

K 1432 **$299**

**Limited Stock**

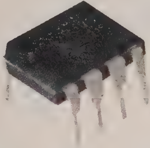
## MICROCONTROLLER – PIC'S

### PIC 16F84-04 Microcontroller



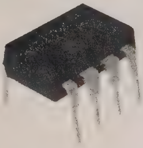
This high performance RISC CPU has only 35 single-word instructions to learn, 1k Flash program memory, 68 bytes of RAM data memory, and 64 bytes of data EEPROM.
Z 9175 $14.50

### PIC 12C509A Microcontroller



This high-performance RISC CPU features only 33 single-word instructions to learn, 1024 x 12 EPROM program, and 41 bytes of RAM data memory.
Z 9170 $7.30

### PIC 12C508 Microcontroller



This high-performance RISC CPU features only 33 single-word instructions to learn, EPROM program: 512 x 12, and RAM data memory: 25 bytes. All instructions are single cycle (1ms) except for program branches which are two cycles.
Z 9168 $7.20

### AVR AT90S8535-8PC Microcontroller

This high-performance RISC CPU combines a rich instruction set with 32 general-purpose working registers. All the 32 registers are directly connected to the Arithmetic Logic Unit (ALU), allowing two independent registers to be accessed in one single instruction executed in one clock cycle. The resulting architecture is more code efficient while achieving throughputs up to ten times faster than conventional CISC microcontrollers.
Z 9205 $26.50

Case not included

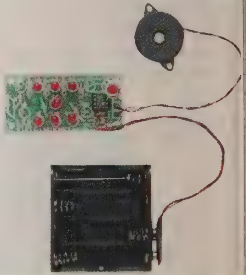
P

### PIC Programmer Kit

Got a concept you'd like to try before building a full prototype? New to microcontrollers but want to learn more about them? This combined PIC programmer and test bed supports PIC16C84, PIC16F84 and PIC16F84A microcontrollers. Simple programming via windows-based software. ZIF (Zero Insertion Force) socket provides easy PIC chip insertion and removal. Clock source can be crystal, resonator or variable RC oscillator. Basic serial (RS232) interface included. Header pins allow easy access to all port lines. Features LCD module support. Kit supplied with PCB, LCD, all components, and instructions.
K 3603 $124

L

### PIC-Based LED Fun Kit



Have fun and learn about microcontrollers. One board lets you construct eight different projects including a timer, dice roller, mini alarm and more. Includes buzzer, LEDs, programmed IC (PIC) and all components. Power supply required: 3V DC.
K 3167 $25.30

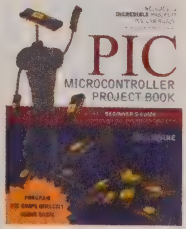
## MICROCONTROLLER BOOKS

### Programming and Customizing the PIC Microcontroller 2nd Ed

PROGRAMMING AND CUSTOMIZING PICmicro MICROCONTROLLERS
MYKE PREDKO
PRINTED CIRCUIT BOARD INCLUDED
SECOND EDITION

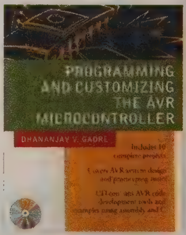
Fully updated and revised compendium of PIC programming information. Comprehensive coverage of the PIC Micros' hardware architecture and software schemes will complement the host of experiments and projects. Comes with CDROM and PIC programmer PCB.
B 7491 $89.95

### PIC Microcontroller Projects



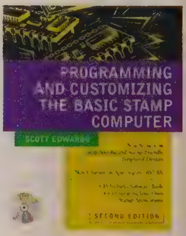
A true beginner's guide to the popular PIC microcontroller. Includes 12 incredible projects you can build. This Book gives you hands-on directions for putting Microchip's RISC-based chips to work. You need absolutely no programming experience to get started.
B 4810 $69.80

### Programming & Customizing the AVR Microcontroller Book 2nd Ed



This reader-friendly guide shows you how to take charge of the newest, most versatile microcontrollers around, Atmel's AVR RISC chip family. Walks you from first looks all the way through design and ready-to-launch products.
B 7493 $99.95

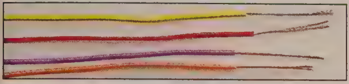
### Programming and Customising the BASIC Stamp Computer Book, 2nd Edition



This guide to taking control of the BASIC Stamp computer is a must for the enthusiast and professional designer. Requiring no complicated assembly language, this text comes with an IBM compatible CD-ROM providing all the software tools necessary to begin developing Stamp applications.
B 4806 $99.95

## HOOK-UP WIRE

### Flexible Light Duty



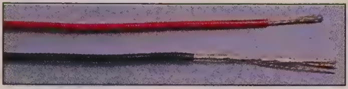
| | |
|---|---|
| **Rating:** | 1A Nom. |
| **Conductors:** | 10 x 0.12mm |
| **Cross Sectional Area:** | 0.11mm$^2$ |
| **Insulation:** | PVC |

Flexible, fully insulated, low voltage hook up wire.

| | | | |
|---|---|---|---|
| Red | W 2220 | D/Blue | W 2226 |
| Black | W 2221 | Purple | W 2227 |
| Brown | W 2222 | Lt Blue | W 2228 |
| Orange | W 2223 | Grey | W 2229 |
| Yellow | W 2224 | Cream | W 2230 |
| Green | W 2225 | White | W 2231 |

35¢ m

### Medium Duty



| | |
|---|---|
| **Rating:** | 4.5A Nom. |
| **Conductors:** | 10 x 0.25mm |
| **Cross Sectional Area:** | 0.49mm$^2$ |
| **Insulation:** | PVC |

| | |
|---|---|
| Red | W 2240 |
| White | W 2241 |
| Black | W 2242 |
| Blue | W 2243 |
| Yellow | W 2244 |
| Yellow/Green | W 2246 |

50¢ m

### Heavy Duty

| | |
|---|---|
| **Rating:** | 7.5A |
| **Conductors:** | 24 x 0.2mm |
| **Cross Sectional Area:** | 0.75mm$^2$ |
| **Insulation:** | PVC |

General use cable for requirements not exceeding 7.5amps.

| | |
|---|---|
| Red | W 2260 |
| Black | W 2262 |
| Green/Grey | W 2264 |

60¢ m

### 12 Colour Pack

A handy pack of 12 x 2m of different coloured strands of light duty wire the same as W 2220 to W 2231. All are 10 x 0.12mm cable. Cross sectional area: 0.11mm$^2$. Ideal for projects, hobbyists, etc.

W 4010

$5.35 pk

### Extra Heavy Duty

| | |
|---|---|
| **Rating:** | 10A Nom. |
| **Conductors:** | 32 x 0.2mm |
| **Cross Sectional Area:** | 1.0mm$^2$ |
| **Insulation:** | PVC |

| | | | |
|---|---|---|---|
| Brown | W 2280 | Blue | W 2282 |
| Red | W 2284 | | |

70¢ m

### Ultra Heavy Duty

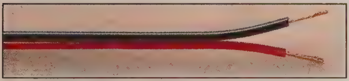
| | |
|---|---|
| **Rating:** | 30A max. |
| **Conductors:** | 41 x 0.32mm |
| **Cross Sectional Area:** | 3.3mm$^2$ |
| **Insulation:** | PVC |

| | |
|---|---|
| Red | W 2286 |
| Black | W 2288 |

$1.50 m

## DC POWER CABLE

### Figure-8 Medium Duty



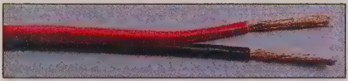
| | |
|---|---|
| **Rating:** | 50V, 5A nom. |
| **Conductors:** | 50 x 0.12mm |
| **Cross Sectional Area:** | 0.55mm$^2$ |
| **Insulation:** | PVC |

Compact, medium duty DC cable suited to supplying power to smaller projects etc.

W 2022

95¢ m

### Figure-8 Heavy Duty



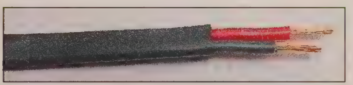
| | |
|---|---|
| **Rating:** | 50V, 17A max. |
| **Conductors:** | 26 x 0.3mm |
| **Cross Sectional Area:** | 1.8mm$^2$ |
| **Insulation:** | PVC |

Ideal for running 150W spot lights etc on the car, or any high current DC application. Colour-coded insulation to find polarity easier.

W 2025

$1.95 m

### Figure-8 Auto Heavy Duty

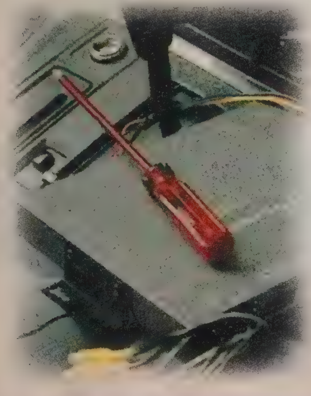


| | |
|---|---|
| **Rating:** | 50V, 19A max. |
| **Conductors:** | 26 x 0.32mm |
| **Cross Sectional Area:** | 2.1mm$^2$ |
| **Insulation:** | PVC |

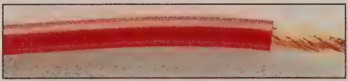
Similar to the Figure-8 Heavy Duty cable but provides a larger conductor area. Colour-coded and has an extra sheath for added protection in automotive applications.

W 2027

$2.45 m



### Extra Heavy Duty



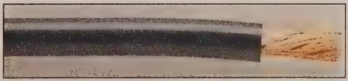
| | |
|---|---|
| **Rating:** | 50V, 50A max. |
| **Conductors:** | 630 x 0.12mm |
| **Conductor Area:** | 7.1mm$^2$ |
| **Sheath:** | Flexible PVC, 6.5mm OD |

Ideal for high current DC applications such as high-power car audio installations, communications equipment, and solar power systems. High-quality O.F.C copper conductors with highly flexible PVC sheath.

| | |
|---|---|
| Red | W 2302 |
| Black | W 2304 |

$3.50 m

### Ultra Heavy Duty



| | |
|---|---|
| **Rating:** | 50V, 120A max. |
| **Conductors:** | 1,666 x 0.12mm |
| **Conductor Area:** | 18.8mm$^2$ |
| **Sheath:** | Flexible PVC, 10.3mm OD |

For those installations with huge DC current needs, such as professional vehicle audio systems, large solar installations, and high power transmitting equipment.

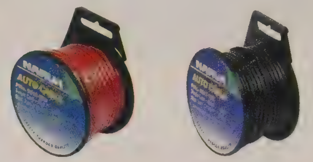
| | |
|---|---|
| Red | W 2306 |
| Black | W 2308 |

$8.95 m

## DC AUTOMOTIVE CABLES

### Narva Auto Cable Reels

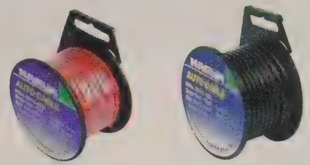
Automotive cable in convenient rolls of commonly used lengths.



### 3mm Cable – 7 metre length

| | |
|---|---|
| **Rating:** | 10A |
| **Conductors:** | 16 x 0.30mm |
| **Cross Sectional Area:** | 1.13mm² |
| **Insulation:** | 0.4mm PVC |
| Red | W 9824 |
| Black | W 9825 |

$4.45 ea



### 4mm Cable – 4 metre length

| | |
|---|---|
| **Rating:** | 15A |
| **Conductors:** | 26 x 0.30mm |
| **Cross Sectional Area:** | 1.85mm² |
| **Insulation:** | 0.4mm PVC |
| Red | W 9826 |
| Black | W 9827 |

$4.95 ea

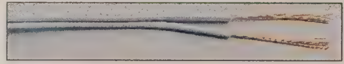
### Figure 8 Cable – 4 metre length

| | |
|---|---|
| **Rating:** | 10A |
| **Conductors:** 2 cores of | 16 x 0.30mm |
| **Cross Sectional Area:** | 2 x 1.13mm² |
| **Insulation:** | 0.4mm PVC |

W 9829 $4.95 ea

## SPEAKER CABLE

### Light Duty

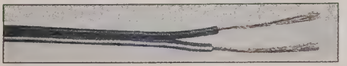


| | |
|---|---|
| **Conductors:** | 14 x 0.14mm |
| **Cross Sectional Area:** | 0.22mm² |
| **Insulation:** | PVC |

Suitable for short runs in intercoms and hi-fi applications. PVC insulation with colour-coded polarity indicator.

W 2010 75¢m

### Medium Duty

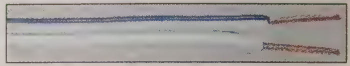


| | |
|---|---|
| **Conductors:** | 14 x 0.20mm |
| **Cross Sectional Area:** | 0.44mm² |
| **Insulation:** | PVC |

Lower resistance than W-2010, for use in longer runs. PVC insulation, with colour-coded polarity indicator.

W 2012 85¢m

### Heavy Duty



| | |
|---|---|
| **Conductors:** | 24 x 0.20mm |
| **Cross Sectional Area:** | 0.75mm² |
| **Insulation:** | PVC |

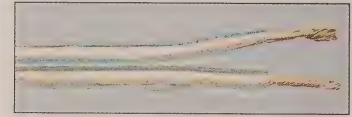
Heavy duty mains rated (240V AC @ 7.5A), insulated cable for use with medium to high power and long runs. PVC insulation with colour-coded polarity indicator.

W 2020 $1.25 m

## OFC SPEAKER CABLE

Our OFC (oxygen-free copper) cable with PVC insulation has extremely high conductivity and very low power loss. It provides the best performance for demanding audiophile applications, and it's attractive translucent insulation makes it unobtrusive in most installations. Harmony high performance flat braid OFC speaker cable is designed for audio and home theatre applications. It has a special low profile design that fits under most carpets.

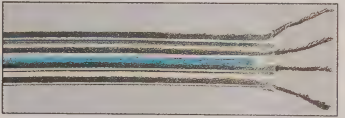
### OFC Speaker Cable



| | |
|---|---|
| **Conductors:** | 60 x 0.12mm |
| **Cross Sectional Area:** | 0.66mm² |
| **Insulation:** | PVC |
| **Nom. Cap:** | 50pF/m |

W 2013 $1.95 m

### Dual Fig. 8 OFC Cable



| | |
|---|---|
| **Conductors:** | 60 x 0.12mm |
| **Cross Sectional Area:** | 0.66mm² |
| **Insulation:** | PVC |
| **Nom. Cap:** | 50pF/m |

W 2023 $2.75 m

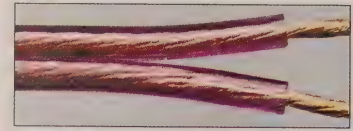
### Low Loss OFC Speaker Cable

SPEAKER CABLE

| | |
|---|---|
| **Conductors:** | 168 x 0.12mm |
| **Cross sectional area:** | 1.9mm² |
| **Insulation:** | PVC |
| **Nom. Cap:** | 60pF/m |

W 2016 $3.80 m

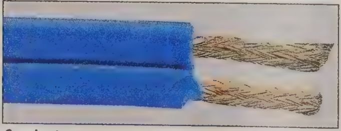
### Super Low Loss OFC



| | |
|---|---|
| **Conductors:** | 315 x 0.12mm |
| **Cross Sectional Area:** | 3.5mm² |
| **Insulation:** | PVC |
| **Nom. Cap:** | 60pF/m |

W 2017 $5.20 m

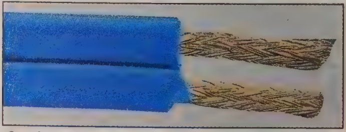
### 16 Braid Harmony OFC Cable



| | |
|---|---|
| **Conductors:** | 112 x 0.10mm |
| **Cross Sectional Area:** | 0.88mm² |
| **Insulation:** | PVC |
| **Nom. Capacitance:** | 40pF/m |

W 2000 $2.50 m

### 24 Braid Harmony OFC Cable

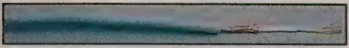


| | |
|---|---|
| **Conductors:** | 168 x 0.10mm |
| **Cross Sectional Area:** | 1.3mm² |
| **Insulation:** | PVC |
| **Nom. Capacitance:** | 40pF/m |

W 2001 $3.50 m

## SHIELDED AUDIO CABLE

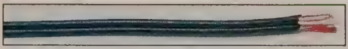
### Single-Core Shielded



**Centre Conductors:** 7 x 0.12mm copper
**Shielding:** 32 x 0.12mm, spiral wrapped
**Diameter:** 3mm OD
**Nom. Capacitance:** 200pF/m

W 2030 90¢ m

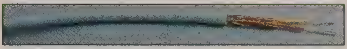
### Twin-Core Mini Shielded



**Conductors:** 16 x 0.1mm copper
**Shielding:** 30 x 0.11mm wrapped
**Diameter:** 2.5 x 5mm OD
**Nom. Capacitance:** 370pF/m

W 2026 $1.05 m

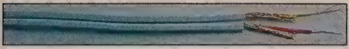
### Twin-Core Shielded



**Centre Conductors:** 7 x 0.12mm copper
**Shielding:** 32 x 0.12mm, spiral wrapped
**Diameter:** 4mm OD
**Nom. Capacitance:** 210pF/m (Conductor-shield)

W 2034 $1.45 m

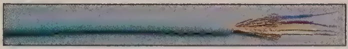
### Twin-Shielded Fig. 8



**Centre Conductors:** 7 x 0.12mm copper
**Shielding:** 32 x 0.12mm, spiral wrapped
**Diameter:** 2 x 2.8mm OD
**Nom. Capacitance:** 210pF/m

W 2036 $1.65 m

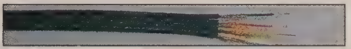
### 4-Core Shielded



**Centre Conductors:** 7 x 0.12mm copper
**Shielding:** 32 x 0.12mm, spiral wrapped
**Diameter:** 5mm OD
**Nom. Capacitance:** 190pF/m (Conductor-shield)

W 2038 $1.95 m

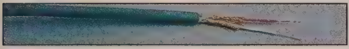
### 4-Core Flat



**Centre Conductors:** 10 x 0.1mm copper
**Shielding:** Spiral-wrapped copper
**Diameter:** 4 x 2.5mm OD
**Nom. Capacitance:** 300pF/m

W 2039 $2.25 m

### Ultra Flexible Twin Core



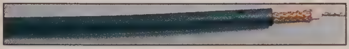
**Centre Conductors:** 10 x 0.12mm
**Shielding:** 48 x 0.1mm braided copper
**Sheath:** Flexible PVC, 5mm OD
**Nom. Capacitance:** 225pF/m (Conductor-shield)

Quality Japanese Cable.

W 2037 $2.75 m

Limited Stock

### Super OFC Single

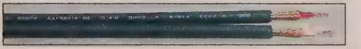


**Centre Conductors:** 14 x 0.18mm
**Shielding:** 112 x 0.12mm 12 pitch braided copper
**Sheath:** PVC, 6mm OD
**Nom. Capacitance:** 85pF/m

High quality, single-core shielded cable made with Oxygen Free Copper (OFC) for maximum conductivity and shielding properties (90% coverage).

W 2032 $3.40 m

### Super OFC Fig. 8



**Centre Conductors:** 14 x 0.18mm
**Shielding:** 112 x 0.12mm 12 pitch braided copper
**Sheath:** PVC
**Nom. Capacitance:** 85pF/m

Great for audio use eg. making up RCA to RCA patch leads. 90% shield coverage.

W 2033 $5.20 m

## TELEPHONE CABLES

Multi-stranded, low current capacity cables ideal for wiring alarm systems, intercoms, etc.

### Bell Cable

Ideal for use with doorbells or intercoms.
**Conductors:** 1 x 0.6mm
**Sheathing:** PVC

W 2005 60¢ m

### 4-Conductor/Flat Telephone Cable

Suitable for patch leads and handset cords.
**Conductors:** 7 x 0.16mm
**Sheathing:** PVC
**Nom OD:** 7mm

W 2121 95¢ m

### 8-Core Flat Telephone Cable

Multi-strand 8 core telephone cable.
Ideal for patch leads.
**Conductors:** 7 x 0.16mm
**Insulation:** PVC
**Nom OD:** 7mm

W 2130 $1.55 m

### 4-Core Telepermitted Telephone Cable

**Conductors:** 1 x 0.51mm solid
**Sheathing:** 75°C PVC
**Telepermit:** PTC222/98/003

W 2128 95¢ m

### 6-Core Telepermitted Telephone Cable

**Conductor:** 6 x 0.40mm bare copper
**Insulation:** 0.80mm PVC
**Sheath:** 3.80mm PVC (White)
**Telepermit:** PTC 204/94/002

W 2102 $1.35 m

## MICROPHONE CABLE

### Microphone Cable

**Centre Conductors:** 20 x 0.12mm copper
**Shielding:** Braided copper
**Sheath:** PVC, 6mm OD
**Nom. Capacitance:** 90pF/m (conductor-shield) 60pF/m (conductor-conductor)

W 2035 $2.95 m

### Coiled Mic Cable

**Centre Conductors:** 30 x 0.08mm
**Shielding:** wrapped copper (1 conductor only)
**Sheath:** PVC

Extends fully up to 1 metre. 3 core, ideal for transceiver microphone leads.

W 1365 $7.50 ea

# Wire & Cable

## ALARM CABLES

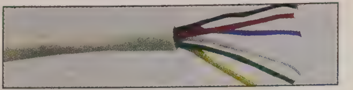
### 4 Core Tinned Security Cable

| | |
|---|---|
| **Conductors:** | 4 cores of 7 x 0.20mm tinned copper |
| **Insulation:** | White PVC, metre marked |
| **Nom OD:** | 4.0mm |

W 9910

95¢m

### 6 Core Tinned Security Cable



| | |
|---|---|
| **Conductors:** | 6 cores of 7 x 0.20mm tinned copper |
| **Insulation:** | White PVC, metre marked |
| **Nom OD:** | 5.2mm |

W 9915

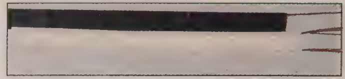
$1.35 m

WARNING
THIS PROPERTY IS UNDER CONSTANT ELECTRONIC SURVEILLANCE
WARNING
THIS PROPERTY IS UNDER CONSTANT ELECTRONIC SURVEILLANCE!
WARNING
THIS PROPERTY IS UNDER CONSTANT ELECTRONIC SURVEILLANCE

*Alarm deterrent stickers available in store*

## TV CABLES

### TV Ribbon Cable



300 ohm ribbon cable for connecting antennas to TV sets. Suitable for shorter runs. Available in both black and clear. VHF use only.

Black W 2070
Clear W 2071

90¢m

### 75 Ohm TV Cable RG-6

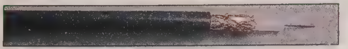
Low loss 75 Ohm coax preferred by professional installers. Used where less attentuation of the signal or longer cable lengths are required between antenna and television socket. Tinned copper braiding.

| | |
|---|---|
| **Conductor:** | 1.0mm Bare Copper |
| **Dielectric:** | 4.60mm Foam PE |
| **Braiding:** | Copper Sheath 64x0.12mm Tinned A1 Foil and 6.50mm PVC, Meter Marked |
| **Attenuation @ 100m:** | 100MHz: 7.4dB<br>200MHz:10.3dB<br>500MHz:16.4dB<br>900MHz:22.8dB |
| **Normal Velocity Ratio:** | 83% |

Black W 2084
White W 2086

$2.25 m

### TV Cable RG-59U Economy



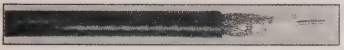
Economical 75 ohm coax as used by many installers. Suitable for most average installations where there's a reasonable signal and runs are not too long.

| | |
|---|---|
| **Centre Conductor:** | 1 x 0.6mm |
| **Shielding:** | Foil shield & copper braid |
| **Dielectric:** | Solid P.E. |
| **Attenuation @ 100m:** | 100MHz: 7dB,<br>300MHz: 14dB,<br>550MHz: 23dB |

W 2081

$1.75 m

### Belden RG6 Coax Cable



| | |
|---|---|
| **Conductor:** | 1.0mm Copper Covered Steel |
| **Dielectric:** | Gas injected polyethylene foam |
| **Shield:** | Duobond II, 60% aluminium braid |
| **Attenuation @ 100m:** | 211MHz: 9.16dB<br>300MHz: 10.98dB<br>500MHz: 14.29dB<br>900MHz: 19.31dB<br>1000MHz: 20.41dB |
| **Velocity:** | 82% |

W 1201

$2.75 m

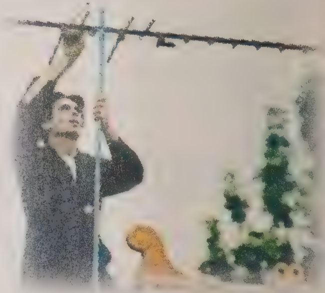
### 75 Ohm Air Space RG59

It's larger diameter centre conductor and air-spaced dielectric provides much lower loss than standard RG-59 cables, especially at UHF frequencies.

| | |
|---|---|
| **Centre Conductor:** | 1 x 0.95mm copper |
| **Shielding:** | Foil & 48 x 0.12mm copper braid |
| **Dielectric:** | Air cored P.E. |
| **Attenuation @ 100m:** | 100MHz: 6.9dB<br>200MHz:10.2dB<br>470MHz:15.5dB<br>700MHz:19.3dB |

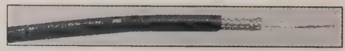
W 2082

$1.95 m



## COMMUNICATION CABLES

### 50 Ohm RG-58C/U



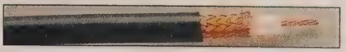
| | |
|---|---|
| **Centre Conductors:** | 19 x 0.18mm tinned copper |
| **Shielding:** | Braided tinned copper, 94.2% coverage |
| **Dielectric:** | PE Type A |
| **Attenuation @ 100m:** | 100MHz: 16dB<br>200MHz: 24dB<br>400MHz: 38dB |

Commercial grade 50 ohm coax. Complies with Mil Spec MIL-C-17D. Ideal for mobile installations due to its small 5mm OD size. It can also be used outdoors over long periods due to its UV resistant PVC outer sheath.

W 2092

$1.95 m

### 50 Ohm RG-213/U



| | |
|---|---|
| **Centre Conductors:** | 7 x 0.7mm copper |
| **Shielding:** | Braided copper, 97% coverage. |
| **Dielectric:** | PE |
| **Attenuation @ 100m:** | 50MHz: 5.2dB<br>100MHz: 7.2dB<br>400MHz: 15.4dB |

A 10mm diameter, low loss 50 ohm cable for HF and VHF/UHF applications. Complies with MIL-C-17D. Ideal for longer runs or high power operation.

W 2099

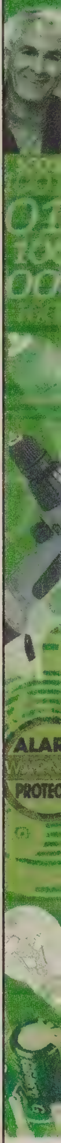
$3.95 m

### Fibre Optic Cable Pack

4m Supra grade optical fibre cable for communications, industrial, or decorative uses. Provides <0.25dB/m attenuation at 650nm, and aperture acceptance angle of 55°. Consists of a single 1.0mm diameter optical fibre inside a tough black jacket of 2.2mm OD. Data sheet suplied.

W 4061

$16.95



## COMPUTER/DATA CABLES

### Category 5 Data Cable - Multi Strand

8 Conductor (4 pair) Indoor Communications cable with nominal 100 ohm impedance, suitable for "patching" applications in data networks.

W 2150

$\$1^{25}$m

### Category 5 Data Cable

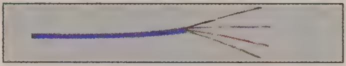
**Conductors:** 1/0.5mm
**Sheath:** PVC
**Nom. OD:** 5.2mm
**Nom. Cap:** 15nF/305m (per pair)

Solid core for fixed/building installation.

W 2151

$\$1^{25}$m

### Category 5E 350MHz Data Cable

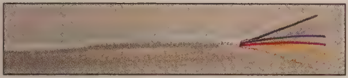


Unicable CAT5 Enhanced is ideal for emerging applications such as 1000BaseT (Gigabit Ethernet), IEEE 8.2.3, IEEE 802.5 and 622Mbps ATM (Asynchronous Transfer Mode) as well as current CAT5 applications including 10BaseT and 100BaseT Fast Ethernet.

W 2156

$\$1^{95}$m

### 5-Core



**Conductors:** 7 x 0.2mm
**Sheath:** PVC
**Shielding:** Foil with drain wire
**Nom. OD:** 5.5mm

W 2040

$\$2^{50}$m

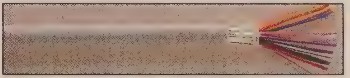
### 8-Core

**Conductors:** 7 x 0.2mm
**Sheath:** PVC
**Shielding:** Foil with drain wire
**Nom. OD:** 6.25mm

W 2046

$\$2^{95}$m

### 12-Core

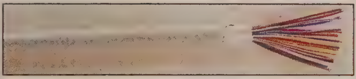


**Conductors:** 7 x 0.2mm
**Sheath:** PVC
**Shielding:** Foil with drain wire
**Nom. OD:** 7.0mm

W 2041

$\$3^{95}$m

### 25-Core



**Conductors:** 7 x 0.2mm
**Sheath:** PVC
**Shielding:** Foil with drain wire
**Nom. OD:** 10.0mm

W 2043

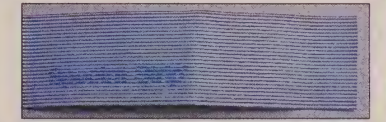
$\$4^{95}$m

### IDC Computer Cables

Flat, multi-strand cable made specially for IDC applications.

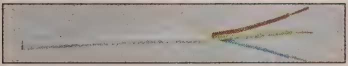
| Type | Cat No | Price/m |
|---|---|---|
| 26-way | W 2750 | **$3.95** |
| 34-way | W 2752 | **$4.50** |
| 40-way | W 2754 | **$4.95** |
| 50-way | W 2756* | **$1.00** |

***Limited Stock**



## MAINS CABLES

### 3-Core Light Duty



**Conductors:** 16 x 0.2mm
**Rating:** 240V AC, 3A nom.
**Sheath:** PVC White, 5.6mm OD

Suitable for small mains rated projects, test equipment and low current applications.

W 2052

$\$1^{95}$m

### Light Duty Cable - 7.5A

**Conductors:** 24 x 0.20mm
**Rating:** 240V AC 7.5A nom
**Conductor Area:** 0.75mm$^2$
**Insulation:** PVC

Light duty Fig 8 mains cable suitable for use with double insulated devices. Colour coded with white/white with black stripe.

W 2020

$\$1^{25}$m

### 3-Core Light Duty

**Conductors:** 24 x 0.2mm
**Rating:** 240V AC, 7.5A nom.
**Conductor Area:** 0.75mm$^2$ nom.
**Sheath:** PVC Grey, 6.1mm OD

Suitable for projects, test equipment, etc not subject to excessive wear and tear, or where size and weight are important.

W 2055

$\$2^{25}$m

### 3-Core Ordinary Duty - 10A

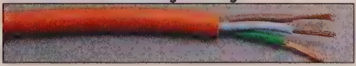
**Conductors:** 32 x 0.2mm
**Rating:** 240V AC 10A nom.
**Conductor Area:** 1.0mm$^2$ nom.
**Sheath:** PVC Grey, 7.4mm OD
**Sheath Thickness:** 0.8mm nom.

The ideal cable for power tools, etc where high drain and excessive wear call for something a little more robust.

W 2058

$\$2^{95}$m

### 3-Core Ordinary Duty - 15A



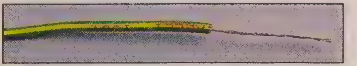
**Conductors:** 30 x 0.25mm
**Rating:** 240V AC, 15A nom.
**Conductor Area:** 1.5mm$^2$ nom.
**Sheath:** PVC. Orange, 8.6mm OD
**Sheath Thickness:** 0.9mm nom.

High power rating and very heavy insulation for industrial power tools, caravan power cables, extension leads for garden power tools, etc.

W 2059 **Limited Stock**

$\$3^{50}$m

### Earth Wire



**Conductors:** 7 x 0.67mm
**Rated:** 240V AC, 25A nom.
**Conductor:** 2.5mm$^2$
**Insulation:** Outer - PVC

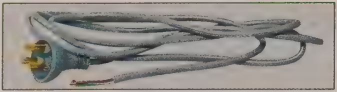
A range of wire and cable as used by builders for standard 240V house wiring.

W 3010

$\$1^{35}$m

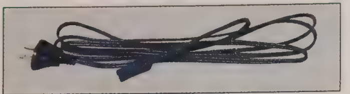
## MAINS LEADS

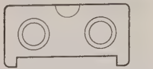
### Cable With 3-Pin Plug



Light duty cable (240V AC @ 10A) fitted with standard 3-pin plug on one end. The other end is bare ready for connection to your project. 2 metres long.
W 2057 **$6.50**

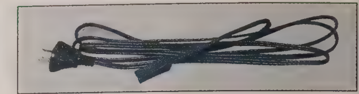
### Mains Lead 7mm Spacing

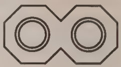




2-metre mains cable fitted with standard 2-pin mains plug on one end and 7mm pin spacing socket on the other. As used on Sanyo and other modern audio equipment which does not require an earth lead.
W 1361 **$9.95**

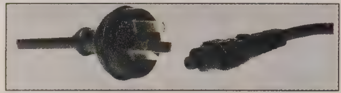
### Universal Mains Lead





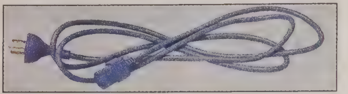
Approved mains cable as used on a huge variety of audio and entertainment equipment which does not require an earth lead. It's 2 metres long and has a 2-pin mains plug on one end and a 2-pin figure-8 type socket on the other.
W 1360 **$9.95**

### Figure 8 Mains Lead with Earth



2 metre long lead with 3 pin mains plug on one end and earthed figure eight connector on the other. Suitable for use with many laptops.
W 1350 **$14.95**

### IEC Mains Lead

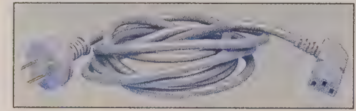


Approved 2-metre mains lead with standard 3-pin plug on one end and 3-pin IEC socket on the other. As used on most computers and communications equipment. 10amp rated.
W 1362 **$10.60**

### IEC Male/Female Extension Lead

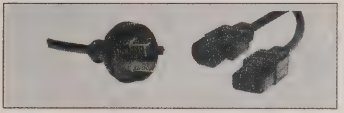
Quality 2-metre extension lead. Ideal for connecting printer or monitor to your computer.
W 1366 **$12.95**

### IEC Mains Lead - Right Angle



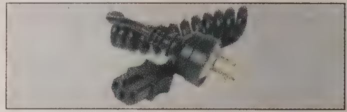
Approved 2 metre mains lead similar to W 1362, but with right angle IEC socket. Ideal for situations where lack of space behind equipment prevents use of a standard straight IEC mains lead. 10amp rated.
W 1375 **$14.95**

### Dual IEC Mains Lead



A unique 2 metre long mains lead with a pin mains plug on one end and two IEC sockets on the other. Run your PC and monitor from the one powerpoint - ideal for saving space on cluttered powerboards.
W 1352 **$14.95**

### Appliance Cord



Coiled appliance cord fitted with standard 3-pin plug and IEC socket. As used on modern kettles and other kitchen appliances. Stretches to 1 metre.
Black W 1373 **$19.95**

## WINDING & COATED WIRE

VERSA
TINNED COPPER WIRE
100g
.71mm
VERSA ELECTRONICS
AUSTRALIA

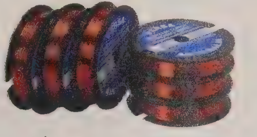
### Tinned Copper Wire

High-quality tinned copper wire (22SWG) in handy 100g roll. Ideal for PC board links, hard wire jumper leads, chassis wiring, etc. Approximately 27-metre roll of 0.71mm tinned copper wire.
W 3015

**$9.95 roll**

### Self-Fluxing Winding Wire

Ideal for coil winding, motor rewinding, transformer building, etc.



#### 25g Rolls

| Gauge B&S | Gauge SWG | Diam mm | Length Metres | Cat No |
|---|---|---|---|---|
| 21 | 22 | 0.71 | 7 | W 3123 |
| 24 | 25 | 0.50 | 13 | W 3124 |
| 26 | 27 | 0.40 | 21 | W 3126 |
| 30 | 33 | 0.25 | 55 | W 3130 |
| 32 | 36 | 0.20 | 85 | W 3132 |
| 36 | 40 | 0.125 | 216 | W 3136 |

**$7.50 ea**

#### 100g Rolls

| Gauge B&S | Gauge SWG | Diam mm | Length Metres | Cat No |
|---|---|---|---|---|
| 16 | 18 | 1.25 | 9 | W 3116 |
| 18 | 19 | 1.0 | 14 | W 3118 |
| 20 | 21 | 0.8 | 21 | W 3120 |
| 22 | 23 | 0.63 | 35 | W 3122 |

**$10.50 ea**

## FUSE WIRE

HPM
FUSE WIRE
5 AMP
10 AMP
15 AMP
BRITE-HEAT
FUSE WIRE

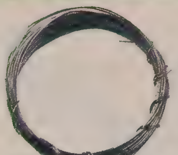
### Fuse Wire

Handy packs of fuse wire for use in mains fuse boxes.

5A, 10A, 15A
**H 3182**
8A, 16A, 20A, 30A
**W 3180**

$2.50 ea

## RESISTANCE WIRE



### Resistance Wire Pack - Cuprothal

Suitable for the construction of wire wound resistors, small heater elements, shunts, etc. Also ideal for emitter resistors in high power amplifiers. The wire is 28 B&S (0.32mm), it's solderable and has a resistance of 6.08 ohms/m. Composition: 45% nickel, 55% copper. Maximum continuous service temperature is 540°C. Comes in a 4-metre pack.
W 3200

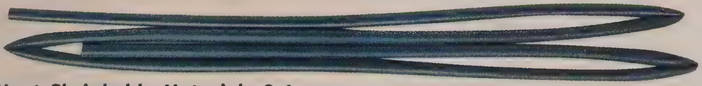
$2.25 pack

### Resistance Wire Pack - Nichrome 80

Nichrome 80 is suitable for resistance heating elements where extreme temperatures (up to 1200°C) are involved. It's supplied in a 4m pack of 28 B&S gauge (0.32mm diameter) and provides a resistance of 13.4 ohms/m at 20°C.
W 3205

$2.95 pack

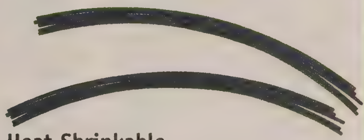
## TUBING & HEATSHRINK



### Heat-Shrinkable Materials 2:1

High flexibility, radiation cross linked, flame retardant (except clear), tubing. Military grade polyolefin, available in an assortment of colours. Complies with U.S.Mil Spec. MIL-1-23053/5. Shrinks to approximately 1/2 listed diameter with very little longitudinal change (<5%). All lengths are 1.2m long. Shrink ratio: 2:1, shrink temperature: >100°C, tensile strength: 16N/mm², elongation test: 400%, longitudinal shrinkage: <5%, dielectric strength: 25kV/mm, dielectric constant: 3.0max, water absorption: 0.15max, specifications: MIL-1-23053/5, Class 2.3

| Size | Black | Red | Other Colours | Price |
|---|---|---|---|---|
| 1.6mm | W 4100 | W 4600 | W 4102 | **$3.75** |
| 3.2mm | W 4104 | W 4607 | W 4106 | **$4.45** |
| 4.8mm | W 4108 | W 4614 | W 4110 | **$4.95** |
| 6.4mm | W 4112 | W 4621 | W 4114 | **$5.75** |
| 9.5mm | W 4116 | W 4628 | W 4118 | **$5.95** |
| 12.7mm | W 4120 | W 4635 | W 4122 | **$6.75** |
| 19.1mm | W 4124 | W 4642 | W 4126 | **$9.95** |
| 25.4mm | W 4128 | | | **$12.95** |



### Heat-Shrinkable Materials 3:1

Military grade polyolefin heatshrink material which shrinks to approximately 1/3 of the listed diameter after heating with little longitudinal change. Comes in a pack of 5 lengths, each 200mm long.

| Size | Cat No | Colour | Price |
|---|---|---|---|
| 1.5mm | W 4400 | Black | **$5.80** |
| 3mm | W 4401 | Black | **$6.50** |
| 7mm | W 4402 | Black | **$8.20** |

### Heat-Shrink Tubing Kit

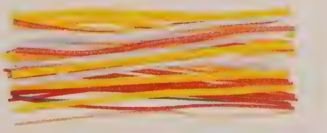
Assorted pre-cut lengths of quality heatshrink tubing in a handy plastic storage case. Includes 2.5mm, 3mm, 5mm, 7mm, 10mm, 13mm and 20mm diameter tubing.
W 4200

$22.95

### Hobbyists Heat-Shrink Pack

Handy pack of heat-shrink tube in assorted colours, sizes and lengths (short lengths only). It's ideal for a variety of projects, etc. Includes 3.2mm, 4.8mm, 6.4mm, 9.5mm, and 12.7mm diameter tubing.
W 4060

$6.95 pack



### Spaghetti Pack

Contains 30 lengths of assorted colours and diameters of spaghetti tubing (each length is greater than 150mm long). Over 4.5m in total length.
W 4040

$5.75 pack

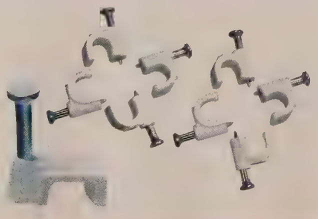
## CABLE TIES & CLAMPS

### For full range of Cable Ties & Cable Clamps see pages 246-247

### Quick Fix Cable Clamps

Designed to hold mains cable firmly in timber, masonry etc. Packs of 20

| Size | Cable Type | Colour | Cat No | Price |
|---|---|---|---|---|
| 4mm | Round | White | W 4050 | **$3.50** |
| 5mm | Figure 8 | White | W 4020 | **$3.50** |
| 6mm | Round | White | W 4051 | **$3.50** |
| 6mm | Round | Black | W 4052 | **$3.50** |
| 8mm | Round | White | W 4053 | **$3.50** |



### Cable Staples

Make fixing low voltage cables to timber easy! They simply straddle the cable and are hammered into place. A plastic cover under each staple helps prevent damage to the cable. In packs of 100.
W 4025

$6.25 pack

Input
Output
240V
12V
1N4001
150Ω

# Welcome to the "Data Section" of Dick Smith Electronics' catalogu

Hobbyists, tradesmen, students and technicians find the Dick Smith Electronics Catalogue a very useful source of information. If you're new to our Catalogue you can expect up-to-date data and handy hints that you won't come by anywhere else. Used by schools and colleges throughout the country, our famous "Data Section" has been fully revised to keep you up to speed with the very latest information. All material has been designed and compiled by our Research and Development Department. No other catalogue in the country gives you so much. In fact, it's so good, you'll often find sections copied, or should we say borrowed, by lesser quality publications. If you wish to copy any material, please seek permission from Dick Smith Electronics to do so. So, when you need accurate, useful and comprehensive information on hand, rea
your Dick Smith Electronics Catalogue. In addition to this comprehensive inform
Data Sheet Packs containing hard-to-get data on integrated circuits are availab
5800/02) from your local store.

**Please Note**

Not all devices shown in this section are stocked by Dick Smith Electronics. Whil
every effort is made to ensure that this data is correct and as up-to-date as poss
you should check the manufacturer's data sheet and you should seek further ac
before you act on this information.

## Battery Replacement Guide

| Type Nos | | Voltage | Size | Type | Replaces Other Type Nos | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **General Purpose Heavy Duty** | | | | | | | | | | | |
| | S-7232 | 1.5 | AA | Carbon Zinc | R6C | UM3-DE | 15 | M15R | UM3 | R6TR | HR6 |
| | | 1.5 | C | Carbon Zinc | R14C | UM2-DE | 14 | M14R | UM2 | R12TR | HR14 |
| | | 1.5 | D | Carbon Zinc | R20C | UM1-DE | 13 | M13R | UM1 | R20TR | HR20 |
| | | 9 | Radio | Carbon Zinc | 6F22 | 006P-DE | PP3 | 2022 | 6F22TR | H6F22 | M1604 |
| **Extra Heavy Duty** | | | | | | | | | | | |
| | S-7237 | 1.5 | AA | Carbon Zinc | R6P | UM3-NE | 15D | M15HD | SUM3 | R6HD | ER6 |
| | S-7238 | 1.5 | C | Carbon Zinc | R14P | UM2-NE | 14D | M14HD | SUM2 | R14HD | ER14 |
| | S-7239 | 1.5 | D | Carbon Zinc | R20P | UM1-NE | 13D | M13HD | SUM1 | R20HD | ER20 |
| **Alkaline** | | | | | | | | | | | |
| E90 | | 1.5 | N | Alkaline | LR1 | AM5 | MN9100 | | 4001 | L20 | 910A |
| E91 | S-7227 | 1.5 | AA | Alkaline | LR6 | AM3 | MN1500 | 15A | 4006 | L40 | |
| E92 | S-7226 | 1.5 | AAA | Alkaline | LR3 | AM4 | MN2400 | 24A | 4003 | L30 | |
| E93 | S-7228 | 1.5 | C | Alkaline | LR14 | AM2 | MN1400 | 14A | | | |
| E95 | S-7229 | 1.5 | D | Alkaline | LR20 | AM1 | MN1300 | 13A | 4020 | L90 | |
| E96 | S-3275 | 1.5 | AAAA | Alkaline | | | | | | | |
| 522 | S-7230 | 9 | Radio | Alkaline | 6LR61 | 6AM6 | MN1604 | 1604 | 4022 | 6L10 | 6LF22 |
| **Lantern Batteries** | | | | | | | | | | | |
| 509 | | 6 | 'Dolphin' | Carbon Zinc | 4R25S | 4F | 908 | M908 | 431 | 4R25 | 996 |
| 529 | | 6 | 'Dolphin' | Alkaline | 4LR25 | 908A | MN9080 | 509 | 1209 | | |
| 731 | S-7353 | 6 | 'Big Jim' | Carbon Zinc | 4R25S-2 | 4F2 | 918 | M918 | 4R25-2991 | | |
| 732 | | 12 | 'Big Jim' | Carbon Zinc | 8R25 | 9FD | 926 | M926 | TW2 | | |
| 1209 | S-7352 | 6 | 'Dolphin' | Carbon Zinc | 4R25P | 4F | 908D | H4R25 | 430 | 96PP | 509 |
| 1231 | | 6 | 'Big Jim'; | Carbon Zinc | 4R25P-2 | 4F2 | 918D | H4R25-2 | 731 | | |
| **Photographic/Special Purpose** | | | | | | | | | | | |
| S76 | | 1.5 | | Silver Oxide | GM13 | G13 | RS76 | MS76 | EPX76 | | |
| GP23A | S-7423 | 12 | | Alkaline | | | | | | | |
| J539 | | 6 | | Alkaline | 7K67 | 867 | 4018 | | | | |
| A544 | S-7422 | 6 | | Alkaline | 4LR44 | 7250 | PX28 | 537 | 7H34 | 544 | |
| GP27A | S-3434 | 12 | | Alkaline | | | | | | | |
| E164 | | 5.6 | | Mercury Oxide | T164 | HM-4N | TR164 | V164PX | | | |
| E400N | | 1.3 | | Mercury Oxide | T400N | H-B | RM400R | V400PX | | | |
| E401 | | 1.4 | | Mercury Oxide | RM401H | RM401 | | | | | |
| EL2CR5 | S-7348 | 6 | | Lithium | 2CR5 | | | | | | |
| EL223AP | S-7338 | 6 | | Lithium | DL223A | BR-P2 | CR-P2 | | | | |
| EPX675 | | 1.35 | | Mercury Oxide | PX675 | HS-C | H-C | RPX675 | 4677 | | |
| **Calculator/Games** | | | | | | | | | | | |
| A76 | S-7444 | 1.5 | High Drain | Alkaline | LR44 | VG13A | RW82 | 4276 | 4176 | EPX76 | G13 |
| | | | | | S76 | 357 | AG13 | 5244 | | | |
| 186 | S-7443 | 1.5 | High Drain | Alkaline | LR43 | VG12GA | FW84 | 4278 | 8007 | GP86 | G12 |
| | | | | | 548 | 386 | AG12 | 10L124 | SR43W | 86A | D386 |
| 189 | S-7445 | 1.5 | High Drain | Alkaline | LR54 | V10GA | RW89 | 4274 | 88019 | GP89 | GP10 |
| | | | | | 289 | 389 | 10L122 | SRW1130 | LR1130 | A120 | 89A |
| EL123AP | S-7337 | 3 | | Lithium | CR123A | BR123A | DL123A | | | | |
| ECR1220 | S-3337 | 3 | Low Drain | Lithium | CR1220 | BR1220 | DL1220 | | | | |
| ECR1616 | S-7126 | 3 | | Lithium | CR1616 | BR1616 | DL1616 | | | | |
| ECR2016 | S-3332 | 3 | | Lithium | CR2016 | BR2016 | DL2016 | | | | |
| ECR2025 | S-3330 | 3 | | Lithium | CR2025 | BR2025 | DL2025 | | | | |
| ECR2032 | S-3331 | 3 | | Lithium | CR2032 | BR2032 | DL2032 | | | | |
| **Watch/Hearing Aid** | | | | | | | | | | | |
| AC13E | S-3039 | 1.4 | | Zinc Air | DA13 | L13Z | AC13 | 13HPX | R13ZA | 13A | |
| AC312E | S-3040 | 1.4 | | Zinc Air | DA312 | L312ZA | AC312 | 312HPX | R312ZA | 312A | |
| AC675E | | 1.4 | | Zinc Air | DA675 | L6752A | AC675 | 675HPX | R6752A | | |
| 357 | S-3293 | 1.5 | High Drain | Silver Oxide | G13 | J | SR44W | 541 | D357 | SR44 | 7 |
| 362 | | 1.5 | Low Drain | Silver Oxide | G11 | SR721SW | 532 | TR721SW | 19 | | |
| 364 | S-7454 | 1.5 | Low Drain | Silver Oxide | G1 | SR621SW | 531 | TR621SW | 31 | | |
| 371 | S-7455 | 1.5 | Low Drain | Silver Oxide | SR69 | SB-AN | V371 | SR920SW | 30 | | |
| 377 | S-7456 | 1.5 | Low Drain | Silver Oxide | BA | SR626SW | D2V | 37 | 39 | V377 | |
| 379 | | 1.5 | Low Drain | Silver Oxide | SR521SW | JA | V379 | 50 | | | |
| 381 | S-7458 | 1.5 | Low Drain | Silver Oxide | SR1120SW | SB-DS | 34 | V381 | | | |
| 384 | S-7457 | 1.5 | Low Drain | Silver Oxide | SR41SW | 527 | D384 | TR41SW | 10 | | |
| 386 | S-3295 | 1.5 | High Drain | Silver Oxide | G12 | H | SR43W | 548 | D386 | SR43 | 186 |
| 389 | S-3292 | 1.5 | High Drain | Silver Oxide | G10 | SR1130W | 554 | D389 | SR54 | 189 | 17 |
| 390 | | 1.5 | Low Drain | Silver Oxide | SR1130SW | SB-AU | 11 | V390 | | | |
| 395 | S-7461 | 1.5 | Low Drain | Silver Oxide | | SR927SW | 394 | D394 | | SB-A4 | 280-17 |
| 392 | S-7459 | 1.5 | High Drain | Silver Oxide | G3 | K | SR41W | 547 | D392 | SR41 | TR41W |
| 393 | | 1.5 | High Drain | Silver Oxide | G5 | F | 546 | D393 | 15 | | |
| 397 | | 1.5 | Low Drain | Silver Oxide | G2 | SR726SW | 536 | TR726SW | 26 | | |

## COMPONENTS

Correctly identifying electronic parts can be one of the nost difficult tasks facing someone building or epairing electronic equipment. As components ecome even smaller to allow higher density circuit oards, it is increasingly difficult to distinguish the ifferent types such as resistors, capacitors, inductors nd subminiature fuses. Knowing what markings to xpect can be a big help when faced with a circuit oard full of unfamiliar components. The information resented here, combined with a basic understanding f components should enable you to correctly identify hose most commonly used.

## PREFERRED VALUES

he system of preferred values, which is used for esistors, capacitors and inductors, was developed to rovide a logical progression from one value to the ext, where each value represents an increase by an pproximately constant percentage. Depending on the olerance of the particular components, there can be etween 3 and 192 preferred values in each decade. he more common series are shown in the tables elow. Values given for each series are repeated in very decade.

### 3 PER DECADE (50% TOLERANCE)

10 22 47

### 12 PER DECADE (10% TOLERANCE)

10 12 15 18 22 27 33 39
47 56 68 82

### 24 PER DECADE (5% TOLERANCE)

10 11 12 13 15 16 18 20
22 24 27 30 33 36 39 43
47 51 56 62 68 75 82 91

## DECIMAL MULTIPLIERS

ecimal multiplier prefixes are in common use to simplify nd shorten the notations of quantities such as omponent values.

apacitance, for example, is measured in Farads. But the arad is far too large a unit to be of practical use in most ases. For convenience, we use sub-multiples to save a lot f figures. For example, instead of writing .000000000001 Farads, we write 1pF (1 picofarad).

he more common prefixes and the relationships to one nother are as follows.

| ABBREV. | PREFIX | MULTIPLY BY | OR |
|---|---|---|---|
| p | pico | 0.000000000001 | $10^{-12}$ |
| n | nano | 0.000000001 | $10^{-9}$ |
| u | micro | 0.000001 | $10^{-6}$ |
| m | milli | 0.001 | $10^{-3}$ |
| – | UNIT | 1 | $10^{0}$ |
| k | kilo | 1000 | $10^{3}$ |
| M | mega | 1000000 | $10^{6}$ |

### UNITS

1000 pico units = 1 nano unit
1000 nano units = 1 micro unit
1000 micro units = 1 milli unit
1000 milli units = 1 unit
1000 units = 1 kilo unit
1000 kilo units = 1 mega unit

## CIRCUIT NOTATION

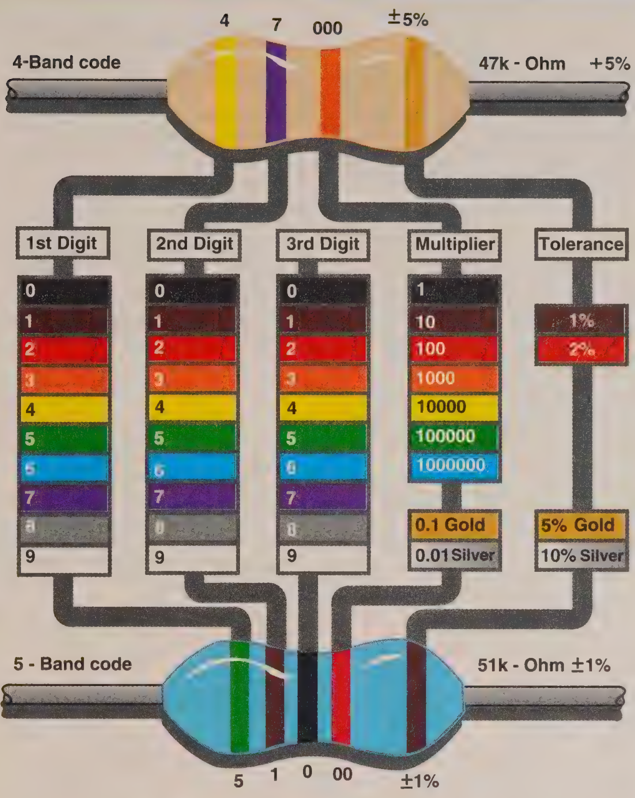
ome circuits give component values as they are normally ooken – e.g. 4.7pF for 4.7 picofarads, 5.6nH for 5.6 anohenries. Others replace the decimal point with the first tter of the sub-multiple e.g. 5n6 for a 5.6nF capacitor or a 6nH inductor. Similarly for resistors, 6k8 is the same as 8k Ohms while 1R5 would mean 1.5 Ohms.

## TOLERANCE

ll components differ from their marked value by ome amount. Tolerance specifies the maximum llowed deviation from the specified value. Tolerances re normally expressed as a percentage of the nominal alue.

s an example, a component with a marked value of 100 nd a tolerance of 5%, could actually be any value etween 5% below the marked value (95), and 5% above he marked value (105).

## RESISTOR COLOUR CODE



Full size copies of this chart are available from all stores (B 1000)

## RESISTORS

Most resistors are so small that it is impractical to print their values on them using normal numeric characters. Instead, they are marked using a code of coloured bands.

Resistors made to tolerance of 5% and 10% are marked with 4 bands while higher precision types, such as 2%, 1%
or better, may be marked with 5 bands to allow for an extra digit of precision.

How to read 4-band codes:

At one end of the resistor there will be a gold, silver or brown tolerance band. This band is usually spaced apart from the other three bands. Start with the band nearest to the other end. Its colour represents the first digit of the resistor's value, as shown in the colour code chart. The next band represents the second digit of the resistor's value.
The third band represents the decimal multiplier, that is, the number of zeros that we have to put after the first two digits to arrive at the resistor's value. The final band gives us the tolerance of the resistor, silver for 10% types, gold for 5% types, brown for 1% types.

Let's take the resistor shown at the top of the colour chart as an example. It's first band is yellow, representing "4" and the second band is violet, representing "7". The third band, the multiplier, is orange which tells us to add 3 zeros to the number we already have. This is the same as multiplying it by 1,000. Thus the value of the resistor is 47,000 – forty-seven thousand ohms or 47k-ohms. Finally, the fourth band, being gold, indicates that the resistor has a 5% tolerance, that is, its actual value will be somewhere between 44,650 Ohms and 49,350 Ohms.

Some special high-voltage resistors use a yellow tolerance band in lieu of gold. This is simply because the metal particles in the gold paint might compromise the resistor's voltage rating.

What they mean:

Band one – first figure of value
Band two – second figure of value
Band three – number of zeros/multiplier
Band four – tolerance

Tolerance band colours: brown 1%, red 2%, gold 5%, silver 10%, none 20%.

Reading 5-band resistors:

Because the final band on these resistors is usually brown or red, it can be a bit more difficult to know which end to start from. In most cases the first four bands are grouped a bit closer together than the fourth and fifth bands. The first two bands are read the same as they are on the 4- band types. The third band supplies the third digit of the value. The fourth band now becomes the multiplier and the fifth represents the tolerance.

For example, if the 5 bands are, from first to fifth, yellow/orange/black/red/brown, then the three significant digits of the value would be "430", the multiplier would
be 2, and the tolerance 1%. Hence, this is the code for a 43000 Ohm, 1% resistor.

What they mean:

Band one – first figure of value
Band two – second figure of value
Band three – third figure of value
Band four – number of zeros/multiplier
Band five – tolerance

# CAPACITORS

Capacitors may be marked to show their value, voltage rating, accuracy, temperature stability and other information. Most capacitors are not marked with all of these, however, the value and voltage rating are usually given. Identification can be difficult because of the variety of systems in use.

## UNITS

The unit of capacitance is the Farad, but this unit is too large in practice. Commonly used smaller units are the microfarad (abbreviated uF), nanofarad (nF) and picofarad (pF). The section on decimal multipliers shows the relationship between these.

Some capacitance values are commonly expressed by only one unit while others can be expressed under two or more units, e.g. 1uF would rarely be called 1000nF and never 1,000,000 pF, even though these are equivalent. However, 0.0047uF is often expressed as 4.7nF, or as 4700pF.

## VALUE

Larger capacitors are marked in microfarads and indicate this by the abbreviations 'uF', 'u' or even the obsolete 'MFD'. Smaller capacitors are marked in nanofarads or picofarads and may abbreviate the unit to 'n' or 'p'.

If the value contains a decimal point the 'u', 'n' or 'p' is sometimes put in place of the decimal point. Therefore a 4.7pF capacitor can be marked as 4p7.

If no unit is given, a judgement, based on the capacitor's physical size, must be made to determine which unit is intended. For example, a small ceramic capacitor marked '4.7' is probably 4.7 pF, whereas a large plastic capacitor marked '4.7' is more likely to be 4.7uF. If the value is in nF then this is invariably shown.

Another marking system uses 3 numeric digits to indicate the value in picofarads. The first two digits represent the first two digits of the value and the third digit is the multiplier or number of zeroes.

For example, a capacitor marked 104 would be read as 1, 0, 0000. This would be formatted as 100,000 pF and would commonly be known as 100nF or 0.1uF. Likewise a capacitor marked 472 would be 4700pF, also known as 4.7nF or .0047uF.

A similar system represents these 3 digits using colours taken from the resistor code, instead of numbers.

Some common values and their possible markings:

| MICROFARADS | NANOFARADS | PICOFARADS | EIA CODE |
|---|---|---|---|
| 0.0001uF* | 0.1n* | 100pF | 101 |
| 0.00022uF* | 0.22n (n22) | 220pF | 221 |
| 0.001uF | 1n (1n0) | 1,000pF | 102 |
| 0.0033uF | 3.3n (3n3) | 3,300pF | 332 |
| 0.01uF | 10n | 10,000pF* | 103 |
| 0.047uF | 47n | 47,000pF* | 473 |
| 0.1uF (u1) | 100n | 100,000pF* | 104 |
| 0.82uF (u82) | 820n | 820,000pF* | 824 |
| 1.0uF (1u0) | 1000n* | 1,000,000pF | 105 |

* Not normally expressed in this form.

## VOLTAGE RATING

Voltage rating is usually marked and is often identified by the symbol 'V'. Most electrolytic capacitors clearly indicate their voltage rating. Polyester capacitors usually show the voltage rating but often omit the 'V' symbol. Small ceramic capacitors often show no voltage rating.

If the capacitance and voltage rating are both marked, a unit is also marked for at least one of the quantities so that the two cannot be confused.

## TOLERANCE

Tolerance indicates how close a capacitor's actual value is likely to be to its marked value.

A tolerance can be marked numerically, as a code consisting of a single letter, or, on colour-coded capacitors, as a 4th coloured band. The code letter is usually placed immediately after the value. Commonly used tolerance codes are:

| CODE | COLOUR | TOL | CODE | COLOUR | TOL |
|---|---|---|---|---|---|
| A | – | +20-10 (2) | L | – | +/-15% |
| C | red | +/-0.25pF (1) | M | black | +/-20% |
| D | green | +/-0.5pF (1) | N | – | +/-30% |
| E | white | +/-1.0pF (1) | P | | +100 -0 |
| F | brown | +/-1% | Q (2) | – | +30 -10 |
| G | red | +/-2% | S | – | +50 -20 |
| J | green | +/-5% | W | – | +50 -10 |
| K | white | +/-10% | W (2) | – | +40 -20 |
| | | | Z | grey | +80 -20 |

(1) used on capacitors <=10pF
(2) used on electrolytic capacitors

## POLARITY

Polarity sensitive capacitors, such as electrolytics, are usually marked with a '+' or '-' symbol adjacent to one lead to indicate polarity. Thomson brand tantalum capacitors may have a triangular logo to indicate the positive lead, instead of the '+' symbol.

# TEMPERATURE CHARACTERISTICS

All real capacitors exhibit some change in value with varying temperature. Some ceramic types exhibit fairly linear changes and are useful as temperature compensating elements in AC circuits.

The temperature coefficients of these types may be marked in letter codes or designated by a coloured spot.

| TEMPCO CODE | EIA CODE | JIS CODE | COLOUR CODE | TEMPCO PPM/°C |
|---|---|---|---|---|
| P100 | | | red/violet | +100 |
| NP0 | COG | C | black | 0 |
| N30 | S1G | H | | -30 |
| N033 | S1G | | brown | -33 |
| N075 | U1G | | red | -75 |
| N080 | U1G | L | red | -80 |
| N150 | P2G | P | orange | -150 |
| N220 | R2G | R | yellow | -220 |
| N330 | S2H | S | green | -330 |
| N470 | T2H | T | blue | -470 |
| N750 | U2J | U | violet | -750 |
| N1500 | P3K | W | orange/orange | -1500 |
| N2200 | R3L | | | -2200 |
| P350/N1000 | SL | SL | | +350 to -1000 |

Capacitors using the JIS code sometimes have a second letter to designate the temperature coefficient's tolerance.

| Letter | Tempco Tolerance |
|---|---|
| G | +/-30ppm/°C |
| H | +/-60ppm/°C |
| J | +/-120ppm/°C |
| K | +/-250ppm/°C |
| L | +/-500ppm/°C |

For example, a capacitor marked "CH" would have a temperature coefficient of between +60ppm/°C and -60ppm/°C ("C"=0, "H"= +/-60ppm/°C).

Ceramic capacitors with non-linear temperature coefficients sometimes use a 3-digit code to indicate – their operating temperature range and their stability over that range.

The 1st character indicates minimum operating temperature, the 2nd, maximum temperature and the 3rd gives the stability over this temperature range.

| 1ST CHARACTER | MIN TEMP °C | 2ND CHARACTER | MAX TEMP °C |
|---|---|---|---|
| X | -55 | 5 | +85 |
| Y | -30 | 7 | +125 |
| Z | +10 | | |

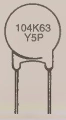
| 3RD CHARACTER | STABILITY (%) |
|---|---|
| F | +/-7.5 |
| P | +/-10 |
| R | +/-15 |
| S | +/-22 |
| T | +22/-33 |
| U | +22/-56 |
| V | +22/-82 |

An example of this is the common 'Z5U' type used in bypass applications. This capacitor operates over the +10° to +85° temperature range and exhibits a stability of +22 to -56% over this temperature range.

## PUTTING IT ALL TOGETHER

Knowing how the important information is likely to be marked, we can decode the markings on a capacitor and determine its value, voltage rating, tolerance and sometimes its temperature characteristic.

For example, a capacitor marked 104K 63V Y5P will be 0.1uF (decoded from the 104) having a +/-10% tolerance (decoded from the K), a 63 Volt rating, an operating temperature range of -30° to + 85° (decoded from Y5) and a stability of +/-10% (P) over this range. Likewise, 6n8K63 would indicate 6.8nF (from 6n8), +/-10%, (from K) and 63 Volts (from 63).



104 = 1 0 0000 pF
= 100nF = 0.1 uF
K = ± 10% Tolerance
63 = 63 Volts
Y = -30°C
5 = +85°C
P = ±10% Stability

## FILM CAPACITOR TYPES

| | |
|---|---|
| KP | Polypropylene film/foil |
| KS | Polystyrene film/foil |
| KT | Polyester film/foil<br>(polyethylene terephthalate PETP) |
| MK | Metallized plastic film (general) |
| MKC | Metallized polycarbonate |
| MKP | Metallized polypropylene |
| MKT | Metallized polyester<br>(polyethylene terephthalate, PETP) |
| MKT-P | Metallized polyester/paper |
| MKY | Metallized low-loss polypropylene |
| MKL (MKU) | Metallized lacquer (cellulose acetate) |

# CAPACITORS & THEIR USES

## ALUMINIUM ELECTROLYTIC CAPACITOF

Ideal for use in filtering or smoothing applications in powe supplies. Also used for coupling and bypassing in audio circuits and as a timing element in non critical circuits.

Modern aluminium electrolytic capacitors have high reliability and low leakage. Special low leakage versions are available with leakage which rivals that of tantalum capacitors.

## SOLID TANTALUM CAPACITORS

Offer smaller size and lower leakage than standard aluminiun electrolytics.

## CERAMIC CAPACITORS

Offer low cost and high capacitance in a small physical volume. There are generally two types:

High stability, temperature compensating types for use in resonant circuit and filter applications. These have linear temperature characteristics, and their value is largely independent of voltage and frequency.

Bypass and coupling capacitors for use in less critical applications. These are less stable, have non-linear temperature characteristics and are somewhat voltage dependent.

## PAPER CAPACITORS

An original construction, now rarely used. Plastic film capacito have replaced paper capacitors in most applications.

## POLYESTER CAPACITORS

Low cost, good stability and available in a large range of values. These are the most widely used capacitors for general purpose applications.

Greencaps and MKT type capacitors are examples of polyester (polyethylene terephthalate) film capacitors.

## POLYCARBONATE CAPACITORS

Offer low temperature coefficient and lower dielectric losses at high frequency. Most often chosen for temperature stability characteristics.

## POLYSTYRENE CAPACITORS

Usually chosen for applications requiring tight tolerance coupled with high stability. Predictable temperature coefficient used in conjunction with particular ferrite cores makes highly stable tuned circuits or oscillators.

## POLYPROPYLENE CAPACITORS

Offer very low dielectric losses and good temperature coefficient Used in power electronics applications, e.g. mains capacitors, switching power supplies, inverters and TV deflection circuits.

## INDUCTORS

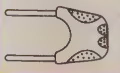
There are a variety of marking systems for small inductors. The value may be marked directly, with a three digit numeric code or a colour code. The tolerance may be marked directly, with a single letter, or a colour code.

The 3-digit numeric code indicates the value in microhenries. The first two digits represent the first two digits of the value and the third is the multiplier, or number of zeroes. For example, the code 472 would be interpreted as 4 7 00 uH, or 4.7mH. Likewise, 103 would represent 10mH.

Where coloured bands are used, the system is essentially the same as that used for the resistor colour code, but with the value expressed in microhenries. An exception is that some inductors include an extra, thicker band at one end to identify milspec characteristics.

Tolerance codes are usually placed after the value code. M is used to represent +/-20%, K or a silver band for +/-10%, J or a gold band for +/- 5%.

Resin-dipped radial lead types are often marked with a sequence of coloured dots. The significance of these dots is shown below.



## MOS HANDLING PRECAUTIONS

Modern MOS manufacturing technologies have brought new levels of circuit sophistication and convenience to the circuit Designer. However, the extremely fine geometries and very high impedances found in these devices results in them being considerably more fragile than earlier devices.

A CMOS IC input is electrically equivalent to a capacitor, of 1 to 5 pF, in parallel with a resistor of around 1 million megohms. Such a huge input impedance is prone to the build up of high electrostatic voltages, which may damage the IC through a variety of failure mechanisms.

Although most MOS devices incorporate protection networks at their inputs, at best these are only effective against static voltages of no more than about 4kV. Even the simple act of walking across a polished floor can cause a static build up on a human body of 4kV-15kV. Consequently, the following handling precautions should be adhered to at all times when handling MOS devices and circuitry.

- Never exceed the published maximum ratings specified for any device, especially a MOS part. Special care may be needed to ensure that switch-on and power down transients are contained within specified limits.
- Tie all unused MOS inputs to low-impedance, valid logic level such as Vss or Vdd.
- Only connect and disconnect test equipment to MOS circuitry while that circuitry is powered up.
- Never remove or insert a socketed MOS IC while power is applied to it.
- When MOS inputs are connected to long, noisy lines, or to circuitry operating from a different power source, series resistors (10K to 100K) should be added to protect the MOS device. In some cases this may be impractical as the added resistance may slow input rise and fall time to an unacceptable degree.
- MOS devices and circuitry should only be stored and transported in antistatic packaging.
- Nylon and similar materials, which allow the generation and build up of static charges, should never be allowed to contact MOS devices.
- MOS devices should be placed on a grounded surface and users should ground themselves to discharge any accumulated static prior to handling the devices. The use of current-limited, grounded wrist-straps is advisable.
- Similarly, soldering irons and other tools should be discharged to ground prior to using them on MOS circuitry.
- MOS devices should be mounted on PCBs after all other components have been loaded and soldered.
- Ground and supply pins of MOS ICs should be soldered before other pins.
- Air humidifiers should be employed in otherwise dry environments. Relative humidities above 40% can significantly reduce the build up of static charges.

## MULTIMETER SAFETY RATINGS

Once only found in laboratories, multimeters have become so affordable that they are now common and in general use. However, not all multimeters have the same ability to withstand surge voltages. Thus a multimeter that may be perfectly suited to making measurements in low power signal circuits, could become hazardous if connected to an ordinary mains power outlet.

The international standard IEC1010 specifies safety requirements for measuring equipment. One of the requirements is that the input terminals of a complying meter be marked with the overvoltage category for which the meter is suitable. These categories are based on the overvoltages that may occur at various points in the main distribution systems, and are listed here:

Cat I Signal level, for example in electronic and telecommunications circuits not directly connected to the mains supply where overvoltages and the available energy are limited to low values. Impulse test voltage for 240V circuits: 500V.

Cat II Local level, for example at a general-purpose power outlet, or at appliances or portable equipment directly connected to the mains supply. Impulse test voltage for 240V circuits: 2500V.

Cat III Distribution level, for example at a power distribution board or at appliances connected a short distance from the distribution board. Impulse test voltage for 240V circuits: 4000V.

It can be seen that to measure the mains voltage at a power point, a meter with a Cat II or higher rating is required. To make a measurement at a switchboard, a meter with a Cat III rating is needed. If a multimeter with a lower, or no category rating is connected to the mains supply, a transient overvoltage caused by a switching action, or by lightning, may result in insulation breakdown and the creation of an internal arc. Because the mains supply can provide enormous currents, once a surge-induced arc commences, a huge amount of energy is available to cause destruction, and possible injury to the user.

A multimeter designed for a particular overvoltage category will incorporate appropriated insulation between internal conductors to prevent electrical breakdown should an overvoltage occur. Since this insulation often consists of air gaps between conductors, meters designed for higher overvoltage categories need more space around the input terminals and circuitry. This presents a design challenge, particularly as manufacturers try to include as many ranges and features as possible into new multimeter.

IEC 1010 compliant multimeters rated for category II or III tend to be more expensive, and sometimes have less ranges of features than non-compliant meter. Therefore, it is important to carefully consider the intended use of a multimeter before deciding on a particular model. If the meter is intended for making measurements on low power, low voltage electronic circuits, a low cost feature-packed non-IEC1010 complainant meter will offer the best value. However, if the meter is to be used to make measurements on mains powered circuits, there is no substitute for an appropriately rated IEC1010 compliant meter.

## RMS, AVERAGE AND PEAK RELATIONSHIPS

The term "RMS" (root-mean-square) is often encountered in electronics publications. It is the value of a voltage or current waveform which results in the same power being dissipated in a resistive load. For example, a 240V RMS a.c. waveform, no matter what its shape, will cause the same power dissipation in a resistor as 240V d.c.

The table below shows the relationship between the RMS and average values for three common waveforms for which the peak value is known. Multiplying the peak value by the factors given in the table will yield the RMS and average values.

Strictly speaking, the average value of a waveform, which is symmetrical about the zero axis, is zero. However, we often need to know the average of the absolute value of a waveform, and this is the value which the table factors will yield.

Most test equipment does not directly measure RMS values. Meters typically measure average values but are scaled to provide the RMS value of a sine wave. Knowing this, we can convert the indicated reading back to the average value and then convert this to the true RMS value as long as we know the shape of the measured waveform.

| WAVESHAPE | MULTIPLYING FACTOR TO CONVERT PEAK VALUE TO:<br>RMS | AVERAGE |
|---|---|---|
| Sine | 0.707 | 0.637 |
| Square | 1 | 1 |
| Triangle/ Sawtooth | 0.577 | 0.5 |

## JAPANESE SEMICONDUCTORS

Japanese Semiconductor part numbers that conform to JIS nomenclature provide useful information about the type of device.

The first character is a numeral which is one less than the effective number of electrodes. Therefore, diodes will begin with '1', transistors with '2'.

The second character is always 'S' to indicate the product is a semiconductor. The third character indicates the type of semiconductor:

A ................High Frequency PNP Transistor
B ................Low Frequency PNP Transistor
C ................High Frequency NPN Transistor
D ................Low Frequency NPN Transistor
J ..................P Channel FET
K ..................N Channel FET
S ..................Small Signal Diodes

Using this information, we can work out that a 2SC 1969 must be a HF NPN transistor, and 2SK 134 will be an N channel FET.

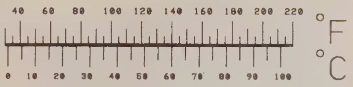
### CONVERSIONS

| | |
|---|---|
| Angstroms/Nanometer | 10 |
| millimetres/inch | 25.4 |
| centimetres/foot | 30.48 |
| metres/yards | 0.914 |
| kilometres/mile | 1.609 |
| grams/ounce | 28.35 |
| kilograms/pound | 0.454 |
| litres/pint | 0.567 |
| litres/gallon | 4.54 |
| litres/cubic foot | 28.32 |
| Joules/Electron Volt | $1.60210 \times 10^{-19}$ |
| Watts/Horsepower | 746 |
| Coulombs/Amps Hour | 3600 |

### TEMPERATURE CONVERSION

$°C = 5/9\ (°F - 32)$

$°F = 32 + 9/5\ °C$



### HANDY CONSTANTS

| | | |
|---|---|---|
| Natural logarithm base | e | 2.71828 |
| In (x)/log (x) | | 2.3026 |
| Pi | | 3.14159265 |
| Pi (for Basic Programmers) | | 4 x ATN (1) |
| 0dBm | | 1mW |
| 0dBm voltage in 600 ohms | | 774.6mV |
| 0dBm voltage in 50 ohms | | 223.6mV |
| dBSPL reference level | | 20uPa |
| Charge on electron | e | $1.60210 \times 10^{-19}$C |
| Absolute zero | 0K | -273.16°C |
| Speed of light in Vacuum | c | $2.997925 \times 10^{8}\,\mathrm{ms}^{-1}$ |
| Speed of Sound | c | |
| - In air @ 0°C | | $331.6\,\mathrm{ms}^{-1}$ |
| - In air @ 20°C | | $343\,\mathrm{ms}^{-1}$ |
| - In fresh water @ 20°C | | $1481\,\mathrm{ms}^{-1}$ |
| - In sea water @ 13°C | | $1500\,\mathrm{ms}^{-1}$ |
| Density of air @ 20°C | p0 | $1.293\,\mathrm{kgm}^{-3}$ |

## FUSES

The humble fuse provides reliable and low cost protection against excessive currents which occur during overloads. There are many different types and styles of fuses, and selecting the right fuse for a particular application can be difficult.

When replacing blown fuses, try to obtain a fuse with a rating as close as possible to the original. If it is not possible to locate an exact replacement, remember this – A higher current fuse will offer less protection to the equipment, increasing the risk of damage and fire. A lower current fuse will offer more protection, but will be more prone to nuisance blowing. Therefore, it is better to substitute a lower value fuse until the correct type is obtained.

The explanations below should assist in understanding the terminology of fuses.

**Current Rating** indicates the current carrying capacity of a fuse under a particular set of test conditions, at 25°C. Fuses operated at higher temperatures need to be derated, and allowance must be made for any surge that occurs during switch-on. It is generally recommended that fuses be specified at 125% of normal load current in order to avoid nuisance blowing.

**Voltage Rating** is the maximum circuit voltage at which a fuse can be relied upon to safely interrupt an overcurrent. At voltages higher than the rating, a fuse may not be able to suppress the internal arcing that occurs after the fuse link melts. In electronic circuits, where limiting impedances ensure that the fault current is kept low so that a destructive arc cannot occur, fuses may sometimes be used beyond their specified voltage rating.

**Fuse Types.** The common 3AG (Size 3 Automotive Glass) fuses are 6.3mm (0.25") in diameter and 32mm (1.25") in length. 5AG fuses are 10.3mm (13/32") in diameter and 38mm (1.5") in length, while the smaller M205 fuse is 5mm in diameter and 20mm in length. Automotive 'blade' fuses have in-line blade contacts and a plastic body that is coloured coded for easy current rating identification.

Standard fast-acting fuses are designed to open very quickly during an overload. They are not designed to withstand the inrush current or switch-on surge that occurs in some equipment.

Time delay or slow-blow fuses are designed to tolerate the temporary overloads that occur during switch on, but they still blow quickly if subjected to gross overloads during faults. Slow blow fuses are commonly used in the primary circuits of electronic equipment, where the initial surge can be many times the normal load current. Slow blow fuses and fast acting fuses are not interchangeable due to their different time characteristics.

It should be understood that the overload needed to cause even a fast-acting fuse to open quickly must be of the order of 200% or more. An overload of only 35% (ie 4A through a 3A fuse) could take an hour to open a fuse.

# ELECTRONIC FORMULA

## CAPACITORS & INDUCTORS REACTANCE & RESONANCE

Like resistors, capacitors and inductors can be used to impede the flow of current in a circuit. However, unlike resistors, the impedance of these components varies with frequency. The impedance of an inductor increases with increasing frequency whereas the impedance of a capacitor increases with decreasing frequency. While the impedance of a resistor is termed resistance, the impedance of capacitors and inductors is termed reactance. The reactance of a capacitor can be calculated from the formula:

$$Xc = \frac{1}{2\pi f C}$$

For an inductor the formula becomes : **$X_L = 2\pi f L$** where $X_C$ is the capacitive reactance in ohms, $X_L$ the inductive reactance in ohms, C is the capacitance in farads, L is the inductance in henries and f is the applied frequency in Hz.

Because reactive impedances are imaginary and resistive impedances are real, they cannot be added numerically.
The total impedance of a resistor in series with a reactive component is given by:

$$Z = \sqrt{X^2 + R^2}$$

Where Z is the complex impedance in Ohms, X is the capacitive or inductive reactance and R is the resistance of the resistor in Ohms.

When an inductor and a capacitor are placed in parallel, at a particular frequency, termed the resonant frequency, the magnitude of their reactances will be equal and the parallel network will have a very high impedance which decreases either side of the resonant frequency. If the components are placed in series, the network will have a very low impedance which increases at either side of the resonant frequency. The resonant frequency of an LC network is given by:

$$f = \frac{1}{2\pi\sqrt{LC}}$$

## DECIBELS

Contrary to much popular usage, the decibel (dB) is not actually a unit of any particular quantity, but rather an expression of the ratio between two quantities, such as power, voltage, current and acoustic pressure.

Many sensors, including our own ears respond to stimuli in a logarithmic fashion, allowing them to detect a huge range of intensities. As the dB compares the logarithms of quantities, it agrees with our perceptive comparisons.

To calculate the ratio, in dB, of two power levels, P1 and P2, the formula is:

$$dB = 10\log(P1/P2)$$

If the quantities are voltages, currents or sound pressure levels, X1 and X2, the formula becomes:

$$dB = 20\log(X1/X2)$$

If the quantities, X1 and X2, are both measured in the same impedances, their dB ratio will be numerically equal to the dB ratio of their equivalent powers. If their impedances, Z1 and Z2, are unequal, the dB ratio of their powers can be found from:

$$dB = 20\log(X1/X2) + 10\log(Z2/Z1)$$

Negative dB values result when P1 (or X1) is less than P2 (or X2), while positive values indicate that P1 (or X1) is greater than P2 (or X2). Although the dB is not an absolute unit, certain absolute units using the dB scale have been devised. These include dBuV, dBm and dBSPL. dBuV is a logarithmic expression of a voltage compared to 1uV (microvolt). Thus, 76 dBuV is equivalent to 6.31 mV (millivolts).

dBm is an expression of a power level compared to 1mW (milliwatt). -20dBm is therefore equivalent to 10uW. Furthermore, because the unit dBm is specifically a measure of power, OdBm represents 775mV in a 600 ohm impedance but 224mV in a 50 Ohm impedance.

dBSPL is a measure of sound pressure level.

Although usually referred to 20.4uPa (micropascals), other reference levels may be specified. Using 20uPa as a reference, 1 Pascal equates to 93.8 dBSPL.

## INDUCTOR DESIGN

There are no simple, generalise[illegible]tions for inductor design. However, equations for a [illegible] special cases will allow inductors to be designed [illegible] range of applications.

1. Single-layer air cored coils of length at least equal to radius. Useful in RF applications

$$L = \frac{N^2 r^2}{254(0.9r+l)}$$

Where
L = inductance in uH
N= number of turns
l = coil length in mm
r = coil radius in mm

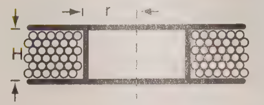
2. Multi-layer air cored coils of height equal to inner radius. Useful for loudspeaker crossovers etc.

$$H = 0.34\sqrt{\frac{L}{R}}$$

$$N = 19.9\sqrt{\frac{L}{H}}$$

$$d = \frac{0.841H}{\sqrt{N}}$$

Where
L = inductance in uH
N = number of turns
H = coil height in mm
d = wire diameter in mm
R = coil's d.c. resistance in ohms



3. Multi-layer air cored similar to (2) but with height equal to one half of the coil's inner radius.

$$H = 0.323\sqrt{\frac{L}{R}}$$

$$N = 13.2\sqrt{\frac{L}{H}}$$

$$d = \frac{0.738H}{\sqrt{N}}$$

Where the symbols have the same meaning as in (2).

4. Coils wound on high permeability core materials having a closed magnetic loop, such as ferrite toroids, or 'E' cores.

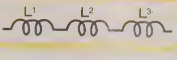
$$N = T\sqrt{\frac{L}{A_L}}$$

Where
L = inductance of coil
$A_L$ = the inductance of T turns of the particular core

5. For coils wound on high permeability core materials having an open magnetic loop, such as ferrite screw cores, the coil permeability is dominated by the large air gap, not the core permeability. Coil design is based on the formula for air cored coils as shown in 1 above. The increase in inductance due to the presence of the core material generally needs to be determined by trial and error, but the final inductance is typically 2 or 3 times the air cored inductance.

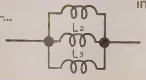
## INDUCTORS IN SERIES

$L_T = L_1 + L_2 + L_3 + \ldots$



## INDUCTORS IN PARALLEL

$$L_T = \frac{1}{\frac{1}{L_1} \quad \frac{1}{L_2} + \frac{1}{L_3}\ldots}$$



Two inductors in parallel

$$L_T = \frac{L_1 \times L_2}{L_1 + L_2}$$

# CIRCUIT LAWS

## OHM'S LAW

The relationship between voltage, current and resistance in a circuit is defined by Ohm's law, which may be simply stated by the formula:

**$E = I \times R$** where E is in Volts, I is in amps and R is in Ohms.

This can be turned around to look like:

$$I = \frac{E}{R} \qquad R = \frac{E}{I}$$

## POWER IN A CIRCUIT

In a circuit incorporating resistive components only:

**$P = E \times I$** where P is in Watts, E is in Volts and I is in Amps.

Note: RMS values of E & I must be used for alternating current circuits.

This can be combined with Ohm's law to yield:

**$P = 1^2 \times R$** or **$P = E^2/R$**
where R is Ohms.

For an AC circuit containing non-resistive components,

**$P = E \times 1 \times PF$**

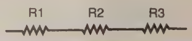
Where PF is the Power Factor: the ratio between the real and apparent power in the circuit. For sinusoidal voltages and currents, the power factor is equal to the cosine of the phase angle between them. The power factor can be less than or equal to one.

## RESISTORS IN SERIES

Resistors in a series circuit are simply added together to find the total resistance. In other words, a 10 Ohm, 150 Ohm and 1000 Ohm-resistor connected in series would be the equivalent of a single 1,160 Ohm resistor.

The formula is:

$R_T = R_1 + R_2 + R_3 + \ldots$



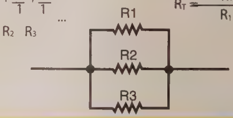
## RESISTORS IN PARALLEL

Resistors in a parallel circuit are a little more difficult. The formula to use is:

$$R_T = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}\ldots}$$

Two resistors in parallel

$$R_T = \frac{R_1 \times R_2}{R_1 + R_2}$$



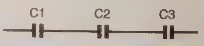
## CAPACITORS IN SERIES

Capacitors in series, on the other hand, are similar to resistor in parallel. You add the reciprocals:

$$C_T = \frac{1}{\frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3}\ldots}$$

Two capacitors in series

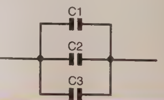
$$C_T = \frac{C_1 \times C_2}{C_1 + C_2}$$



## CAPACITORS IN PARALLEL

Capacitors behave exactly the opposite to resistors; when capacitors are in **parallel**, you add them:

$C_T = C_1 + C_2 + C_3 + \ldots$



# WIRE AND COAXIAL CABLE SPECIFICATIONS

| TYPE | NOM. ZO | OUTER (mm) | NOM. ATTENUATION (dB/100M) MHz | MHz | MHz | MHz | 1GHz | VEL. FACTOR % | CAP. pF/m | VOLT. VRMS |
|---|---|---|---|---|---|---|---|---|---|---|
| RG-6/U | 75 | 6.85 | 4.9 | 6.9 | 10.2 | 14.4 | 19.7 | 78 | 57.2 | – |
| RG-8/U | 52 | 10.3 | 5.2 | 7.2 | 10.5 | 15.4 | 29.2 | 66 | 96.8 | 5000 |
| RG-9/U | 51 | 10.67 | 5.2 | 7.2 | 10.5 | 15.4 | 29.2 | 66 | 98.4 | 5000 |
| RG-11/U | 75 | 10.29 | 4.3 | 6.6 | 9.5 | 13.8 | 23.3 | 66 | 67.3 | 5000 |
| RG-58/U | 53.5 | 4.95 | 10.2 | 14.8 | 22.3 | 32.8 | 55.8 | 66 | 93.5 | 1900 |
| RG-58A/U | 50 | 4.95 | 10.8 | 416.1 | 23.9 | 37.7 | 70.5 | 66 | 101 | 1900 |
| RG-58C/U | 50 | 4.95 | 10.8 | 16.1 | 23.9 | 37.7 | 70.5 | 66 | 101 | 1900 |
| RG-59/U | 73 | 6.15 | 7.9 | 11.2 | 16.1 | 23.3 | 39.4 | 66 | 68.9 | 2300 |
| RG-59B/U | 75 | 6.15 | 7.9 | 11.2 | 16.1 | 23 | 39.4 | 66 | 67.3 | 2300 |
| RG-62/U | 93 | 6.04 | 6.2 | 8.9 | 12.5 | 17.7 | 28.5 | 84 | 44.3 | 700 |
| RG-62B/U | 93 | 6.15 | 6.6 | 9.5 | 13.8 | 20 | 36.1 | 84 | 44.3 | 700 |
| RG-122/U | 50 | 4.06 | 14.8 | 23 | 32.8 | 49.9 | 87 | 66 | 101 | 1900 |
| RG-141A/U | 50 | 4.83 | 6.9 | 10.5 | 15.4 | 22.6 | 42.7 | 69.5 | 95.1 | 1900 |
| RG-142B/U | 50 | 4.95 | 8.9 | 12.8 | 18.4 | 26.9 | 44.3 | 69.5 | 95.2 | 1900 |
| RG-174/U | 50 | 2.56 | 21.7 | 29.2 | 39.4 | 57.4 | 98.4 | 66 | 101 | 1500 |
| RG-178B/U | 50 | 1.83 | 34.4 | 45.9 | 62.3 | 91.9 | 150.9 | 69.5 | 95.1 | 1000 |
| RG-179B/U | 75 | 2.54 | 27.9 | 32.8 | 41.0 | 52.5 | 78.7 | 69.5 | 64 | 1200 |
| RG-180B/U | 95 | 3.56 | 15.1 | 18.7 | 24.9 | 35.1 | 55.8 | 69.51 | 49.2 | 1500 |
| RG-187A/U | 75 | 2.66 | 27.9 | 32.8 | 41 | 52.5 | 78.7 | 69.5 | 64 | 1200 |
| RG-188A/U | 50 | 2.59 | 31.5 | 37.4 | 46.6 | 54.8 | 101.7 | 69.5 | 95.2 | 1200 |
| RG-196A/U | 50 | 1.93 | 34.4 | 45.9 | 62.3 | 91.9 | 150.9 | 69.5 | 95.2 | 1200 |
| RG-213/U | 50 | 10.29 | 5.2 | 7.2 | 10.5 | 15.4 | 29.2 | 66 | 101 | 5000 |
| RG-214/U | 50 | 10.8 | 5.2 | 7.2 | 10.5 | 15.4 | 29.2 | 66 | 101 | 5000 |
| RG-223/U | 50 | 5.38 | 10.1 | 14.8 | 21 | 30.2 | 53.5 | 66 | 101 | 1900 |
| RG-303/U | 50 | 4.31 | 6.9 | 10.5 | 15.4 | 22.6 | 42.7 | 69.5 | 95.2 | 1900 |
| RG-316/U | 50 | 2.49 | 30.8 | 34.1 | 43.3 | 54.1 | 101.7 | 69.5 | 95.2 | 1200 |
| BEL 9913 | 50 | 10.29 | 3.0 | 4.6 | 5.9 | 8.5 | 14.8 | 84 | 78.7 | – |

*Note: Except for Belden 9913, all specifications are referenced to MIL-C-17D/F or JAN-C-17A as applicable. Actual cables often exhibit lower losses than those specified above.*

# WINDING WIRE DATA

| B&S | SWG GAUGES | METRIC mm | DIA. MILS | OHMS PER 1000FT | DIA. mm | OHMS PER km |
|---|---|---|---|---|---|---|
| 12 | – | – | 80.81 | 1.588 | 2.053 | 5.210 |
| – | 14 | – | 80.00 | 1.658 | 2.032 | 5.440 |
| – | – | 2.000 | 78.74 | 1.673 | 2.000 | 5.448 |
| – | 15 | – | 72.00 | 2.001 | 1.829 | 6.563 |
| 13 | – | – | 71.96 | 2.003 | 1.828 | 6.572 |
| – | – | 1.800 | 70.87 | 2.065 | 1.800 | 6.775 |
| 14 | – | – | 64.08 | 2.525 | 1.628 | 8.284 |
| – | 16 | – | 64.00 | 2.532 | 1.626 | 8.307 |
| – | – | 1.600 | 62.99 | 2.614 | 1.600 | 8.575 |
| 15 | – | – | 57.07 | 3.184 | 1.450 | 10.47 |
| – | 17 | – | 56.00 | 3.307 | 1.422 | 10.85 |
| – | – | 1.400 | 55.12 | 3.414 | 1.400 | 11.20 |
| 16 | – | – | 50.82 | 4.016 | 1.291 | 13.18 |
| – | – | 1.250 | 49.21 | 4.282 | 1.250 | 14.05 |
| – | 18 | – | 48.00 | 4.501 | 1.219 | 14.77 |
| 17 | – | – | 45.26 | 5.064 | 1.150 | 16.61 |
| – | – | 1.120 | 44.09 | 5.333 | 1.120 | 17.50 |
| 18 | – | – | 40.30 | 6.385 | 1.024 | 20.95 |
| – | – | 1.000 | 39.37 | 6.691 | 1.000 | 21.95 |
| – | 20 | – | 36.00 | 8.002 | 0.9144 | 26.25 |
| 19 | – | – | 35.89 | 8.051 | 0.9119 | 26.41 |
| – | – | 0.9000 | 35.51 | 8.222 | 0.9000 | 27.10 |
| – | 21 | – | 32.00 | 10.13 | 0.8128 | 33.23 |
| 20 | – | – | 31.96 | 10.15 | 0.8120 | 33.30 |
| – | – | 0.800 | 31.50 | 10.45 | 0.8000 | 34.30 |
| 21 | – | – | 28.46 | 12.80 | 0.7231 | 41.99 |
| – | 22 | – | 28.00 | 13.23 | 0.7112 | 43.40 |
| – | – | 0.7100 | 27.95 | 13.27 | 0.7100 | 43.55 |
| 22 | – | – | 25.35 | 16.14 | 0.6440 | 52.95 |
| – | – | 0.6300 | 24.80 | 15.85 | 0.6300 | 55.31 |
| – | 23 | – | 24.00 | 18.00 | 0.6096 | 59.07 |
| 23 | – | – | 22.57 | 20.36 | 0.5734 | 66.80 |
| – | – | 0.5600 | 22.04 | 21.33 | 0.5600 | 70.00 |
| – | 24 | – | 22.00 | 21.43 | 0.5588 | 70.30 |
| 24 | – | – | 20.10 | 25.67 | 0.5107 | 84.22 |
| – | 25 | – | 20.00 | 25.93 | 0.5080 | 85.06 |
| – | – | 0.5000 | 19.69 | 26.76 | 0.5000 | 87.81 |
| – | 26 | – | 18.00 | 32.01 | 0.4572 | 105.0 |
| 25 | – | – | 17.90 | 32.37 | 0.4548 | 106.2 |
| – | – | 0.4500 | 17.72 | 33.04 | 0.4500 | 108.4 |
| – | 27 | – | 16.40 | 38.55 | 0.4162 | 126.5 |
| 26 | – | – | 15.94 | 40.81 | 0.4050 | 133.9 |
| – | – | 0.4000 | 15.75 | 41.28 | 0.4000 | 137.2 |
| – | 28 | – | 14.80 | 47.35 | 0.3759 | 155.3 |
| 27 | – | – | 14.20 | 51.47 | 0.3608 | 168.9 |
| – | – | 0.3550 | 13.97 | 53.10 | 0.3550 | 174.2 |
| – | 29 | – | 13.60 | 56.07 | 0.3454 | 184.0 |
| 28 | – | – | 12.64 | 64.90 | 0.3211 | 212.9 |
| – | 30 | 0.3150 | 12.40 | 67.45 | 0.3150 | 221.2 |
| – | 31 | – | 11.60 | 77.07 | 0.2946 | 252.9 |
| 29 | – | – | 11.26 | 81.83 | 0.2861 | 268.5 |
| – | – | 0.2800 | 11.02 | 85.34 | 0.2800 | 280.0 |
| – | 32 | – | 10.80 | 88.91 | 0.2743 | 291.7 |
| 30 | – | – | 10.03 | 103.2 | 0.2548 | 338.6 |
| – | 33 | – | 10.00 | 103.7 | 0.2540 | 340.2 |
| – | – | 0.2500 | 9.842 | 107.0 | 0.2500 | 351.2 |
| – | 34 | – | 9.200 | 122.5 | 0.2337 | 402.0 |
| 31 | – | – | 8.928 | 130.1 | 0.2268 | 426.8 |
| – | – | 0.2240 | 8.819 | 133.3 | 0.2240 | 437.5 |
| – | 35 | – | 8.400 | 147.0 | 0.2134 | 482.2 |
| 32 | – | – | 7.950 | 164.1 | 0.2020 | 538.4 |
| – | 36 | – | 7.600 | 179.5 | 0.1930 | 589.1 |
| – | – | 0.1800 | 7.087 | 206.5 | 0.1800 | 677.5 |
| 33 | – | – | 7.080 | 206.9 | 0.1799 | 678.8 |
| – | 37 | – | 6.800 | 224.3 | 0.1727 | 735.8 |

# COPPER CABLE CHARACTERISTICS

| NUMBER & SIZE OF STRANDS | NOMINAL CONDUCTOR AREA (SQ. mm) | NOMINAL CURRENT RATING (AMPS) | MAXIMUM RESISTANCE PER METRE (OHMS 35°C) | NEAREST EQUIVALENT AWG (B&S) |
|---|---|---|---|---|
| 10 x 0.12 | 0.11 | 1.1 | 0.17 | 27 |
| 7 x 0.16 | 0.14 | 1.4 | 0.13 | 26 |
| 1 x 0.5 | 0.20 | 2.0 | 0.10 | 24 |
| 14 x 0.14 | 0.22 | 2.2 | 0.088 | 24 |
| 7 x 0.2 | 0.22 | 2.2 | 0.086 | 24 |
| 1 x 0.6 | 0.28 | 2.8 | 0.067 | 23 |
| 1 x 0.7 | 0.38 | 3.8 | 0.049 | 21 |
| 14 x 0.2 | 0.44 | 4.4 | 0.043 | 21 |
| 10 x 0.25 | 0.49 | 4.9 | 0.039 | 20 |
| 63 x 0.10 | 0.49 | 4.9 | 0.039 | 20 |
| 50 x 0.12 | 0.55 | 5.0 | 0.035 | 20 |
| 60 x 0.12 | 0.68 | 6.8 | 0.028 | 19 |
| 89 x 0.1 | 0.70 | 7.0 | 0.027 | 19 |
| 24 x 0.2 | 0.75 | 7.5 | 0.025 | 18 |
| 112 x 0.10 | 0.88 | 8.8 | 0.022 | 18 |
| 30 x 0.2 | 0.94 | 9.4 | 0.020 | 17 |
| 1 x 1.13 | 1.0 | 10.0 | 0.019 | 17 |
| 32 x 0.2 | 1.0 | 10.0 | 0.019 | 17 |
| 512 x 0.05 | 1.0 | 10.0 | 0.019 | 17 |
| 168 x 0.10 | 1.32 | 13.0 | 0.014 | 16 |
| 7 x 0.5 | 1.4 | 14.0 | 0.014 | 16 |
| 30 x 0.25 | 1.5 | 15.0 | 0.013 | 15 |
| 26 x 0.3 | 1.8 | 17.0 | 0.010 | 15 |
| 168 x 0.12 | 1.9 | 18.0 | 0.010 | 14 |
| 26 x 0.32 | 2.1 | 19.0 | 0.0091 | 14 |
| 7 x 0.67 | 2.5 | 22.0 | 0.0077 | 13 |
| 1 x 1.78 | 2.5 | 22.0 | 0.0076 | 13 |
| 252 x 0.127 | 3.2 | 29.0 | 0.0059 | 12 |
| 41 x 0.32 | 3.3 | 30.0 | 0.0057 | 12 |
| 315 x 0.12 | 3.6 | 30.0 | 0.0053 | 12 |
| 630 x 0.12 | 7.13 | 50 | 0.0027 | 9 |
| 1666 x 0.12 | 18.84 | 120 | 0.0010 | 5 |

*Note: The nominal current ratings are intended as guidelines for low power, electronics, communications and control applications only.*

# PROPERTIES OF COPPER

(Based upon the IEC International Annealed Copper Standard.)

Volume Resistivity @ 20°C: 0.0000017241 Ohm-cm

Mass Resistivity @ 20°C: 0.15328 Ohm-grams/sq. metre

Temperature Coefficient @ 20°C: 0.0039

Tensile Strength: 2350 kg/sq. cm

Melting Point: 1083°C

**Note: Dick Smith Electronics does not stock all cables and wires shown. Data is presented for comparative purposes.**

# CHOOSE THE RIGHT CABLE

The following 6 steps should help when trying to choose a suitable wire size for hooking up marine and auto accessories, extension speakers and the like.

1. Decide how much of the available supply voltage you are prepared to lose. All practical wires have some finite resistance, so it is impossible not to lose some voltage.
2. Divide the figure obtained in (1) by the maximum current which you expect to draw through the wire. This result is the tolerable resistance of your wiring.
3. Divide the result obtained in (2) by the total length (in metres) of the wiring loop. Include the distance from the power source to the load, and back again. This result is the maximum resistance of the desired wire in Ohms per metre.
4. From the chart above, select a wire which has a 'Resistance per Metre' figure which is equal to or less than the desired value.
5. Check that the 'Nominal Current Rating' in the table is not exceeded. If it is, then you may need to select a larger wire size with an adequate rating. While the figures given are conservative, they must not be exceeded in 240 Volt applications and may need derating in higher temperature situations.
6. Finally, when purchasing the wire, verify that its insulation is rated to withstand the voltage and temperature for your particular application.

**Example:**

You wish to install a 12 Volt, 55W light on a boat. The current drawn by the light will be (55/12) 4.6 Amps. You calculate that the length of the wiring loop is 5 metres.

Step 1 Lets say that you'll tolerate a loss of 5% of the available 12 Volt supply, i.e. 0.6 Volts.

Step 2 Divide 0.6 Volts by 4.6 Amps to obtain 0.13 Ohms.

Step 3 Divide 0.13 Ohms by 5 metres to obtain 0.026 Ohms per metre.

Step 4 Referring to the chart, you will find that 24 x 0.2 mm wire appears to be suitable as its resistance is 0.025 Ohms per metre.

Step 5 The Nominal Current Rating for this cable is 7.5 Amps and on this basis it is still suitable.

Step 6 As you are dealing with a 12V system and are able to keep the wire away from hot areas and protect it from abrasion, there is unlikely to be any problem related to the insulation.

## BIPOLAR TRANSISTORS

| TYPE | CASE | POL MAT | VCE | VCB | IC mA | VCE@ | @ IC mA |  |  | fT@ MHz | @ IC mA | PTOT mW | USE | COMPARABLE TYPES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BC107 | TO-18 | NS | 45 | 50 | 100 | 0.25 | 10 | 110-450 | 2 | 300 | 10 | 300 | G.P. S.S. Amp. | BC207, BC147, BC182 |
| BC108 | TO-18 | NS | 20 | 30 | 100 | 0.25 | 10 | 110-800 | 2 | 300 | 10 | 300 | G.P. S.S. Amp. | BC208, BC148, BC183 |
| BC109 | TO-18 | NS | 20 | 30 | 100 | 0.25 | 10 | 200-800 | 2 | 300 | 10 | 300 | Low Noise S.S. Amp | BC209, BC149, BC184 |
| BC109C | TO-18 | NS | 20 | 30 | 100 | 0.25 | 10 | 420-800 | 2 | 300 | 10 | 300 | Low Noise High Gain | BC209C, BC149C, BC184C |
| BC177 | TO-18 | PS | 45 | 50 | 100 | 0.3 | 10 | 75-260 | 2 | 150 | 10 | 300 | G.P. S.S. Amp. | BC157, BC307, BC212 |
| BC178 | TO-18 | PS | 25 | 30 | 100 | 0.3 | 10 | 75-500 | 2 | 150 | 10 | 300 | G.P. S.S. Amp. | BC158, BC308, BC213 |
| BC179 | TO-18 | PS | 20 | 25 | 100 | 0.3 | 10 | 125-500 | 2 | 150 | 10 | 300 | G.P. S.S. Amp. | BC159, BC309, BC214 |
| BC327 | TO-92VAR1 | PS | 45 | 50 | 500 | 0.7 | 500 | 100-600 | 100 | 100 | 10 | 625 | Output | 2N3638 |
| BC328 | TO-92VAR1 | PS | 25 | 30 | 500 | 0.7 | 500 | 100-600 | 100 | 100 | 10 | 625 | Output | BC327 |
| BC337 | TO-92VAR1 | NS | 45 | 50 | 500 | 0.7 | 500 | 100-600 | 100 | 100 | 10 | 625 | Output | 2N3642 |
| BC338 | TO-92VAR1 | NS | 25 | 30 | 500 | 0.7 | 500 | 100-600 | 100 | 100 | 10 | 625 | Output | BC337 |
| BC546 | TO-92VAR1 | NS | 65 | 80 | 100 | 0.6 | 100 | 110-450 | 2 | 300 | 10 | 500 | G.P. S.S. Amp. |  |
| BC547 | TO-92VAR1 | NS | 45 | 50 | 100 | 0.6 | 100 | 110-800 | 2 | 300 | 10 | 500 | G.P. S.S. Amp. | BC107, BC207, BC147 |
| BC548 | TO-92VAR1 | NS | 30 | 30 | 100 | 0.6 | 100 | 110-800 | 2 | 300 | 10 | 500 | G.P. S.S. Amp. | BC108, BC208, BC148 |
| BC549 | TO-92VAR1 | NS | 30 | 30 | 100 | 0.6 | 100 | 200-800 | 2 | 300 | 10 | 500 | Low Noise S.S. Amp. | BC109, BC209, BC149 |
| BC549C | TO-92VAR1 | NS | 30 | 30 | 100 | 0.6 | 100 | 420-800 | 2 | 300 | 10 | 500 | Low Noise High Gain | BC109C, BC149C |
| BC556 | TO-92VAR1 | PS | 65 | 80 | 100 | 0.65 | 100 | 75-475 | 2 | 200 | 10 | 500 | G.P. S.S. Amp. |  |
| BC557 | TO-92VAR1 | PS | 45 | 50 | 100 | 0.65 | 100 | 75-800 | 2 | 200 | 10 | 500 | G.P. S.S. Amp. | BC157 |
| BC558 | TO-92VAR1 | PS | 30 | 30 | 100 | 0.65 | 100 | 75-800 | 2 | 200 | 10 | 500 | G.P. S.S. Amp. | BC158 |
| BC559 | TO-92VAR1 | PS | 30 | 30 | 100 | 0.65 | 100 | 125-800 | 2 | 200 | 10 | 500 | G.P. S.S. Amp. | BC159 |
| BC639 | TO-92(74) | NS | 80 | 100 | 1A | 0.5 | 500 | 40-250 | 150 | 130 |  | 1W | Audio O/P | MU9610, TT801 |
| BC640 | TO-92(74) | PS | 80 | 100 | 1A | 0.5 | 500 | 40-250 | 150 | 50 |  | 1W | Audio O/P | MU9660, TT800 |
| BD139 | TO-126 | NS | 80 | 100 | 1.5A | 0.5 | 500 | 40-250 | 150 | 250 | 50 | 8W | G.P. O/P | 40409 |
| BD140 | TO-126 | PS | 80 | 100 | 1.5A | 0.5 | 500 | 40-250 | 150 | 75 | 50 | 8W | G.P. O/P | 40410 |
| BD262 | TO-126 | PS | 60 | 60 | 4A | 2.5 | 1.5A | 750 | 1.5A | 7 | 1.5A | 36W | High Gain Darl. O/P | BD266 |
| BD263 | TO-126 | NS | 60 | 80 | 4A | 2.5 | 1.5A | 750 | 1.5A | 7 | 1.5A | 36W | High Gain Darl. O/P | BD267 |
| BD266A | TO-220 | PS | 80 | 80 | 8A | 2 | 3A | 750 | 3A | 7 |  | 60W | High Gain Darl. O/P |  |
| BD267A | TO-220 | NS | 80 | 100 | 8A | 2 | 3A | 750 | 3A | 7 |  | 60W | High Gain Darl. O/P |  |
| BD681 | TO-126 | NS | 100 | 100 | 4A | 2.5 | 1.5A | 750 | 1.5A | 1 |  | 40W | Darlington O/P | BD263 |
| BD682 | TO-126 | PS | 100 | 100 | 4A | 2.5 | 1.5A | 750 | 1.5A | 1 |  | 40W | Darlington O/P | BD262 |
| BF173 | TO-72(28) | NS | 25 | 40 | 25 |  |  | 40-100 | 7 | 550 | 5 | 230 | T.V. I.F. Amp. |  |
| BF199 | TO-92VAR2 | NS | 25 | 40 | 25 |  |  | 37 | 7 | 550 |  | 500 | H.F. Amp. | BF180 |
| BF463 | TO-202 | PS | 250 | 250 | 500 |  |  | 40-180 | 30 | 20 |  | 2W | H.V. Med. Pwr. |  |
| BF469 | TO-126 | NS | 250 | 250 | 50 |  |  | 50 | 25 | 60 | 10 | 1.8W | G.P. High-V. Amp. |  |
| BF470 | TO-126 | PS | 250 | 250 | 50 |  |  | 50 | 25 | 60 | 10 | 1.8W | G.P. High-V. Amp. |  |
| BFR90 | SOT-37(2) | NS | 15 | 20 | 25 |  |  | 25-250 | 14 | 5GHz | 14 | 180 | Wideband Amp. |  |
| BFR91 | SOT-37(2) | NS | 12 | 15 | 35 | 0.3 | 30 | 25-250 | 30 | 5GHz | 30 | 180 | Wideband Amp. |  |
| BFY90 | TO-72(25) | NS | 15 | 30 | 25 |  |  | 25-125 | 2 | 1GHz | 2 | 200 | Wideband Amp. |  |
| BUX80 | TO-3 | NS | 400 | 800 | 10A | 1.5 | 5A | 30 | 1.2A | 8 |  | 100W | Deflection, High Current SW |  |
| MJ802 | TO-3 | NS | 90 | 100 | 30A | 0.8 | 7.5A | 25-100 | 7.5A | 2 | 1A | 200W | High Power Output |  |
| MJ2955 | TO-3 | PS | 60 | 70 | 15A | 1.1 | 4A | 20-70 | 4A | 2.5 | 500 | 115W | G.P. Power |  |
| MJ4502 | TO-3 | PS | 90 | 100 | 30A | 0.8 | 7.5A | 25-100 | 7.5A | 2 | 1A | 200W | High Power Output |  |
| MJ10012 | TO-3 | NS | 400 | 600 | 10A | 2 | 6A | 100-2K | 6A |  |  | 175W | Power Darlington |  |
| MJ15003 | TO-3 | NS | 140 | 140 | 20A | 1 | 5A | 25-150 | 5A | 2 | 500 | 250W | High Power Output |  |
| MJ15004 | TO-3 | PS | 140 | 140 | 20A | 1 | 5A | 25-150 | 5A | 2 | 500 | 250W | High Power Output |  |
| MJE340 | TO-126 | NS | 300 |  | 500 | 0.75 | 100 | 30-240 | 50 |  |  | 20W | G.P. H.V. Power |  |
| MJE350 | TO-126 | PS | 300 |  | 500 | 0.77 | 100 | 30-240 | 50 |  |  | 20W | G.P. H.V. Power |  |
| MJE2955T | TO-220 | PS | 60 | 70 | 10A | 1.1 | 4A | 20-100 | 4A | 2 | 500 | 75W | G.P. Power | TIP2955 |
| MJE3055T | TO-220 | NS | 60 | 70 | 10A | 1.1 | 4A | 20-100 | 4A | 2 | 500 | 75W | G.P. Power | TIP3055 |
| MPSA14 | TO-92(72) | NS | 30 | 30 | 500 | 1.5 | 100 | 20000 | 100 | 125 | 10 | 625 | G.P. Darlington |  |
| MPSA65 | TO-92(72) | PS | 30 | 30 | 500 | 1.5 | 100 | 20000 | 100 | 100 | 10 | 625 | G.P. Darlington |  |
| MRF629 | TO-39A | NS | 16 | 36 | 400 |  |  | 20-200 | 100 |  |  | 5W | UHF Power |  |
| MRF660 | TO-220A | NS | 16 | 36 | 2.4A |  |  | 20-160 | 250 |  |  | 25W | UHF Power |  |
| PN100 | TO-92(72) | NS | 35 | 60 | 500 | 0.5 | 100 | 60-240 | 150 | 350 | 50 | 600 | G.P. Amp/Switch | PN2222, 2N3643 |
| PN2907 | TO-92(72) | PS | 40 | 60 | 600 | 0.4 | 150 | 100-300 | 150 | 200 | 50 | 625 | High S. Switch |  |
| PN200 | TO-92(72) | PS | 35 | 60 | 500 | 0.5 | 150 | 50-400 | 150 | 200 | 50 | 600 | G.P. Amp/Switch | 2N3638, BC214, PN3645 |
| TIP31B | TOP-66 | NS | 80 | 80 | 3A | 1.2 | 3A | 25 | 1A | 3 | 500 | 40W | Power Output |  |
| TIP32B | TOP-66 | PS | 80 | 80 | 3A | 1.2 | 3A | 25 | 1A | 3 | 500 | 40W | Power Output |  |
| TIP142 | TOP-3 | NS | 100 | 100 | 10A | 2 | 5A | >1000 | 5A |  |  | 125W | Audio Output | TIP140, TIP141 |
| TIP147 | TOP-3 | PS | 100 | 100 | 10A | 2 | 5A | >1000 | 5A |  |  | 125W | Audio Output | TIP145, TIP146 |
| TIP2955 | TOP-3 | PS | 70 | 100 | 15A | 1.1 | 420 | 20 | 4A | 3 | 500 | 90W | Power Output | MJE2955 |
| TIP3055 | TOP-3 | NS | 70 | 100 | 15A | 1.1 | 4A | 20 | 4A | 3 | 500 | 90W | Power Output | MJE3055 |
| 2N2222A | TO-18 | NS | 40 | 75 | 800 | 1.6 | 500 | 100-300 | 150 | 300 | 20 | 500 | High S. Switch |  |
| 2N3019 | TO-39 | NS | 80 | 140 | 1A | 0.5 | 500 | 50-100 | 500 | 100 | 50 | 800 | H.F. Amp |  |
| 2N3053 | TO-39 | NS | 40 | 60 | 700 | 1.4 | 150 | 50-250 | 150 | 100 | 50 | 2.86W | G.P. Sw | BD137 |
| 2N3054 | TO-66 | NS | 60 | 90 | 4A | 0.1 | 200 | 25-100 | 500 | 0.8 | 200 | 25W | Audio Output | TIP31B |
| 2N3055 | TO-3 | NS | 60 | 70 | 15A | 1.1 | 4A | 20-70 | 4A | 2.5 | 500 | 115W | G.P. Power | BDY20 |
| 2N3563 | TO-106 | NS | 15 | 30 | 50 |  |  | 20-200 | 8 | 600 | 8 | 200 | RF – IF Amp | BF173 |
| 2N3564 | TO-106 | NS | 15 | 30 | 100 | 0.3 | 20 | 20-500 | 15 | 400 | 15 | 200 | RF – IF Amp | BF167 |
| 2N3565 | TO-106 | NS | 25 | 30 | 50 | 0.35 | 1 | 150-600 | 1 | 400 | 1 | 200 | Low Level Amp | BC108, BC208 |
| 2N3566 | TO-105 | NS | 30 | 40 | 200 | 1 | 100 | 150-600 | 10 | 40 | 30 | 300 | G.P. Amp & Sw | BC183 |
| 2N3567 | TO-105 | NS | 40 | 80 | 500 | 0.25 | 150 | 40-120 | 150 | 60 | 50 | 300 | G.P. Amp & Sw | BC337 |
| 2N3568 | TO-105 | NS | 60 | 80 | 500 | 0.25 | 150 | 40-120 | 150 | 60 | 50 | 300 | G.P. Amp & Sw |  |
| 2N3569 | TO-105 | NS | 40 | 80 | 500 | 0.25 | 150 | 100-300 | 150 | 60 | 50 | 300 | G.P. Amp & Sw |  |
| 2N3638A | TO-105 | PS | 25 | 25 | 500 | 0.25 | 50 | 100 | 50 | 150 | 50 | 300 | G.P. Amp & Sw | BC328 |
| 2N3641 | TO-105 | NS | 30 | 60 | 500 | 0.22 | 150 | 40-120 |  | 250 | 50 | 350 | G.P. Amp & Sw | BC337 |
| 2N3642 | TO-105 | NS | 45 | 60 | 500 | 0.22 | 150 | 40-120 |  | 250 | 50 | 350 | G.P. Amp & Sw | BC337 |
| 2N3643 | TO-105 | NS | 30 | 60 | 500 | 0.22 | 150 | 100-300 | 150 | 250 | 50 | 350 | G.P. Amp & Sw | BC337 |
| 2N3644 | TO-105 | PS | 45 | 45 | 500 | 1 | 300 | 100-300 | 150 | 200 | 20 | 300 | G.P. Amp & Sw | BC327 |
| 2N3645 | TO-105 | PS | 60 | 60 | 500 | 1 | 300 | 100-300 | 150 | 200 | 20 | 300 | G.P. Amp & Sw |  |
| 2N3771 | TO-3 | NS | 40 | 50 | 30A | 2 | 15A | 15-60 | 15A | 0.2 | 1A | 150W | Power Output |  |
| 2N3866 | TO-39 | NS | 30 | 55 | 400 |  |  | 10-200 | 50 | 500 | 50 | 1W | VHF Amp |  |
| 2N3904 | TO-92(72) | NS | 40 | 60 | 200 | 0.2 | 10 | 100-300 | 10 | 300 | 10 | 310 | Low Level Amp | BC167A, BF194 |
| 2N3905 | TO-92(72) | PS | 40 | 40 | 200 | 0.4 | 50 | 50-200 | 10 | 200 | 20 | 310 | G.P. Amp & Sw |  |
| 2N3948 | TO-39 | NS | 20 | 36 | 400 |  |  | 15 | 50 | 700 | 50 | 1W | VHF Amp |  |
| 2N4030 | TO-39 | PS | 60 | 60 | 1A | 0.5 | 500 | 25 | 500 | 260 | 100 | 800 | G.P. Amp & Sw |  |
| 2N4250 | TO-106 | PS | 40 | 40 | 100 | 0.25 | 10 | 250-700 | 0.1 | 50 |  | 200 | Low Level Amp | BC559 |
| 2N4258 | TO-106 | PS | 12 | 12 | 50 | 0.5 | 50 | 30-120 | 10 | 700 | 10 | 200 | Saturated Sw |  |
| 2N4427 | TO-39 | NS | 20 | 40 | 400 | 0.4 | 100 | 10-200 | 100 | 500 | 50 | 1W | VHF/UHF Driver | 2N3866 |
| 2N5401 | TO-92(72) | PS | 150 | 160 | 6000 | 0.5 | 50 | 60-240 | 10 | 100 | 10 | 625 | H.V. Switch | MPSL51 |
| 2N6557 | TO-202 | NS | 250 | 250 | 500 |  |  | >40 | 50 | 45 |  | 2W | H.V. Med Pwr |  |
| 2SC710 | TO-92/76 | NS | 25 | 30 | 30 |  |  | 90 | 1 | 100 |  | 200 | G.P. RF Amp | BFS18 |
| 2SC1306 | TOP-66 | NS | 65 | 65 | 3A |  |  | 40-200 | 500 | 300 |  | 12W | H.F. Output | 2SC2166 |
| 2SC1307 | TOP-66 | NS | 70 | 70 | 8A |  |  | 20-150 | 2A | 150 |  | 25W | H.F. Output | 2SC1969 |
| 2SC1674 | TO-92(74) | NS | 20 | 30 | 20 | 0.3 | 10 | 40-180 | 1 | 600 | 1 | 250 | VHF Amp |  |
| 2SC1969 | TOP-66 | NS | 30 | 60 | 6A |  |  | 10-180 | 10 | 150 |  | 20W | H.F. Output | 2SC1307 |
| 2SC2166 | TOP-66 | NS | 75 | 75 | 4A |  |  | 35-180 | 100 |  |  |  |  |  |
| 2SC2694 | T-40 | NS | 17 | 35 | 20A |  |  | 10-180 | 1A | 800 |  | 140W | VHF Output | MRF247 |
| 2SC3355 | TO-92(74) | NS | 12 | 20 | 100 |  |  | 50-300 | 20 | 6.5GHz | 20 | 600 | UHF SS | MRF573 |
| 2SC3358 | MX | NS | 12 | 20 | 100 |  |  | 50-300 | 20 | 7GHz | 20 | 250 | UHF SS | MRF573 |

*Note: Some small signal transistors may have a TO-92 case and a "PN" prefix. The electrical specifications are the same, only the case is changed. See case outline TO-92(72) for pin detail.*
*Not all devices in this section are stocked by Dick Smith Electronics.*

## TRIACS

| TYPE | CASE | VDRM | IT (R.M.S.) (A) | IFSM (A) | IGT (mA) | VGT (T = 25°C) | PG (AV) (W) | IH (mA) | DV/DT (V/uS) | COMMENTS (25°C) |
|---|---|---|---|---|---|---|---|---|---|---|
| BT137-500 | TO-220 | 500 | 8 | 55 | 35 (70-+) | 1.5 | 0.5 | 20 | 100 | (Gate o/c) |
| BT139-500 | TO-220 | 500 | 16 | 140 | 35 (75-+) | 1.5 | 0.5 | 30 | 100 | (Gate o/c) |
| BT139-600 | TO-220 | 600 | 16 | 140 | 35 (75-+) | 1.5 | 0.5 | 30 | 100 | (Gate o/c) |
| BTA10-600B | TO-220 | 600 | 10 | 100 | 50 (100-+) |  |  | 50 | 100 @ 400V | (Isolated Tab) |
| BTA41-600B | TOP-3 | 600 | 40 | 300 | 50 (100-+) | 1.5 | 1.0 | 80 | 250 | (Isolated Tab) |
| Q4006L4 | TO-220 | 400 | 6 | 65 | 25 (50-+) | 2.5 max all modes | 0.9 | 60 max | 100 typ | (Gate o/c) |
| SC141D | TO-220 | 400 | 6 | 74 | 50 (50-+) | 2.5 " | 0.5 | 50 max | 100 typ | (Gate o/c) |
| SC146D | TO-220 | 400 | 10 | 110 | 50 (50-+) | 2.5 " | 0.5 | 50 max | 150 typ | (Gate o/c) |
| SC151D | TO-220 | 400 | 15 | 110 | 50 (50-+) | 2.5 " | 0.5 | 50 max | 250 typ | (Gate o/c) |

## FETS

| FETS | CASE | BVGSS V | @ IG (uA) | VGS (OFF) MIN | MAX @ | VDS | ID (nA) | IDSS(mA) MIN | MAX @ VDS | VGS | MIN | YFS (UMHOS) MAX | @ VDS | mW | PTOT | USE/COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BF245B | TO-92 Var 1 | 30 | 1 | 0.5 | 8 | 15 | 10 | 6 | 15 | 15 | 0 | 3000 | 6500 | 15 | 300 | N/CH Junction Audio to H.F. |
| BF981 | SOT-103 | >6 | | 2.5 | | 10 | 20uA | 4 | 25 | 10 | 0 | 14000 typ. | | 225N/CH Dual Gate MOS.VHF AMP. | | |
| BF998 | SMT | >6 | ±10 | | 2.5 | 8 | 20uA | 2 | 18 | 10 | 0/4 | 24000 typ. | 8 | 200N/CH VHF/UHF Dual Gate SMT | | |
| BFR84 | TO-72(2) | >6 | 100 | 1.5 | 3.8 | 10 | | 20 | 55 | 10 | 0 | 15000 typ. | 10 | 300N/CH VHF Dual Gate | | |
| MFE131 | TO-72(2) | ±6 | ±10 | | 4 | 15 | 200uA | | 30 | 15 | 0 | 8000 | 20000 | 15 | 300 | N/CH Dual Gate MOS.VHF Amp. |
| MPF102 | TO-92(72) | 25 | 10 | 0.5 | 8 | 15 | 2 | 2 | 20 | 15 | 0 | 2000 | 7500 | 15 | 310 | N/CH Junction – VHF |
| MPF105 | TO-92(72) | 25 | 1 | | 8 | 15 | 10 | 4 | 16 | 15 | 0 | 2000 | 6000 | 15 | 310 | N/CH Junction – Audio Sw. |
| MPF106 | TO-92(72) | 25 | 1 | 0.5 | 4 | 15 | 10 | 4 | 10 | 15 | 0 | 2500 | 7000 | 15 | 310 | N/CH Junction – RF |
| MPF131 | 262 | ±6 | ±10 | | 4 | 15 | 200uA | 3 | 30 | 15 | 0 | 8000 | 20000 | 15 | 350 | N/CH Dual Gate MOS.VHF Amp |
| 2N4342 | TO-92(72) | 25 | 10 | | 5 | 10 | | 12 | 30 | 10 | 0 | | 6000 | 10 | 180 | P/CH Junction – Audio Sw. |
| 2N5245 | TO-92(77) | 30 | 1 | 1.5 | 6 | 10 | | 1 | 18 | | 0 | 5800 typ. | | 10 | 360 | N/CH VHF/UHF MIXER |
| 2N5459 | TO-92(72) | 25 | 1 | 2 | 8 | 15 | 10 | 4 | 9 | 15 | 0 | 2000 | 6000 | 15 | 310 | N/CH Junction – Audio Sw. |
| 2N5484 | TO-92(72) | 25 | 1 | 0.3 | 3 | 15 | 10 | 1 | 5 | 15 | 0 | 3000 | 6000 | 15 | 310 | N/CH Junction – VHF |
| 2N5485 | TO-92(72) | 25 | 1 | 0.5 | 4 | 15 | 10 | 4 | 10 | 15 | 0 | 3500 | 7000 | 15 | 310 | N/CH Junction – VHF |
| 2N5486 | TO-92(72) | 25 | 1 | 2 | 6 | 15 | 10 | 8 | 20 | 15 | 0 | 4000 | 8000 | 15 | 310 | N/CH Junction – VHF |
| 3SK40 | TO-72(2) | ±6 | ±10 | | 4 | 15 | 200uA | | 25 | 15 | 0 | 8000 | | 15 | 250 | N/CH Dual Gate MOS.VHF Amp. |
| 3SK121 | 2-6F1A | –5 | | –2.5 | 4 | 5 | 100uA | 20 | 45 | 5 | 0 | 17000 typ. | 10 | 200N/CH UHF GaAs Dual Gate | | |

## POWER FETS

| TYPE | CASE | PTOT (W) | VDS (MAX) (V) | ID (MAX) (A) | VGS (THRES.)GFS MIN | MAX | CISS UMHOS | RDS (pF) | COMMENT (OHMS) | |
|---|---|---|---|---|---|---|---|---|---|---|
| BUK456-60A | TO-220 | 150 | 60 | 52 | 2.1 | 4 | 17M | 2000 | 0.028 | Inverters |
| BUK456-60A | TO-220 | 150 | 60 | 52 | 2.1 | 4 | 17M | 2000 | 0.028 | Inverters |
| BUK457-600B | TO-220 | 150 | 600 | 7.1 | 2.1 | 4 | 8M typ. | 1800 | 1.2 | Mains SMPS |
| BUZ71A | TO-220 | 40 | 50 | 13 | 2.1 | 4 | 4M | 600 | 0.12 | Nch Power MOSFET |
| IRF520 | TO-220 | 60 | 100 | 9.2 | 2 | 4 | 4M | 350 | 0.25 | Nch Power MOSFET |
| IRFP450 | TO-247 | 180 | 500 | 14 | 2.0 | 4.0 | 14M | 2700 | 0.4 | N-ch Power MOSFET |
| MTP3055E | TO-220 | 40 | 60 | 12 | 2 | 4.5 | 4M | 500 | 0.15 | Nch Power MOSFET |
| PHP6N60E | TO-220 | 125 | 600 | 6.5 | 3.0 | 4.0 | 5M | 1500 | 1.2 | Nch Power MOSFET |
| VN10K | TO-92(76) | 1 | 60 | 0.3 | 0.3 | 2.5 | 100K | 48 | 5 | Nch DMOS FET |
| VN88AF | TO-202F | 12.5 | 80 | 2 | 0.8 | 2 | | | | Nch VMOS FET |
| 2SJ48 | TO-3 | 100 | 120 | 7 | 0.15 | 1.45 | 1M | 900 | 1 | Pch Power MOSFET |
| 2SJ49 | TO-3 | 100 | 140 | 7 | 0.15 | 1.45 | 1M | 900 | 1 | Pch Power MOSFET |
| 2SJ162 | TOP-3 | 100 | 160 | 7 | 0.15 | 1.45 | 1M | 900 | 1 | Pch Power MOSFET |
| 2SK133 | TO-3 | 100 | 120 | 7 | 0.15 | 1.45 | 1M | 600 | 1 | Nch Power MOSFET |
| 2SK134 | TO-3 | 100 | 140 | 7 | 0.15 | 1.45 | 1M | 600 | 1 | Nch Power MOSFET |
| 2SK1058 | TOP-3 | 100 | 160 | 7 | 0.15 | 1.45 | 1M | 600 | 1 | Nch Power MOSFET |
| 60N06 | TO-220 | 150 | 60 | 60 | 2.0 | 4.0 | 20k | 1950 | 1.0 | Nch Power MOSFET |

## SMALL SIGNAL DIODES

| TYPE | CASE | VR | IF (mA) | CD (pF) | VF | @ | IF (mA) | IR (uA) | @ | VR | TRR (nS) | USE /COMPARABLE TYPES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Germanium** | | | | | | | | | | | | |
| OA47 | DO-7 | 25 | 110 | 3.5 | 0.45 | | 10 | 100 | | 25 | 70 | Gold Bonded G.P. Switching |
| OA90 | DO-7 | 20 | 45 | | 1.5 | | 10 | 450 | | 20 | | G.P. Point Contact OA70, OA80 |
| OA91 | DO-7 | 90 | 50 | | 1.9 | | 10 | 180 | | 75 | | G.P. Point Contact OA71, 79, 81 |
| DSOA91 | DO-7 | 50 | 30 | 1 | 1 | | 5 | 200 | | 10 | | G.P. OA91, 1N60 |
| 1N60 | DO-7 | 40 | 30 | 1 | 0.05 | | 0.375 | 200 | | 10 | | AM/FM Detector |
| OA95 | DO-7 | 90 | 50 | | 1.5 | | 10 | 110 | | 0.75 | | G.P. Point Contact |
| **Silicon** | | | | | | | | | | | | |
| BA102 | DO-7 | 20 | | 20-45 | Cd Ratio 1.4 | @ | 4V/10V | | | | | Variable Capacitance |
| BA234/4 | DO-35 | 20 | 100 | <2 | 1 | | 100 | 0.1 | | 15 | | UHF Sw. |
| BAW62 | SOD-27 | 75 | 200 | 2 | 0.75 | | 5 | 5 | | 75 | 4 | High Speed Silicon Sw. |
| BB119 | DO-35 | 15 | | 20-25 @ 4V | Cd Ratio >1.3 | @ | 4V/10V | | | | | Varicap – replaces BA102 |
| BB122 | DO-35 | 30 | | 12 @ 3V | Cd Ratio 5.2 | | | 0.05 | | 28 | | Varicap VHF UHF |
| BB212 | TO-92 | 12 | | 500-620 @ 0.5V | Cd Ratio >22.5 | @ | 0.5V/8V | 0.05 | | 10 | | AM Dual Varicap |
| 1N914A | DO-35 | 75 | 75 | 4 | 1 | | 10 | 5 | | 75 | 4 | Small Signal Sw. 1N4148 |
| 1N4148 | DO-35 | 75 | 200 | 4 | 1 | | 10 | 0.025 | | 20 | 4 | Small Signal Sw. 1N914A |
| 1N4448 | DO-35 | 75 | 300 | 4 | 1 | | 100 | 0.025 | | 6 | 4 | G.P. Silicon Sw. 1N4148 |
| 5082-2800 | DO-7 | 70 | 15 | 2 | 0.41 | | 1 | 0.2 | | 50 | 0.1 | Schottky (Hot Carrier) UHF Detector, Mixer Switch |

## RECTIFIERS

| TYPE | VR | IF (A) | IFSM (A) | VF | @ | IF (A) | IR (uA) | @ | VR | USE |
|---|---|---|---|---|---|---|---|---|---|---|
| BYX98/600 | 600 | 10 | 75 | 1.4 | | 10 | 200 | | 600 | Power Rectifier Stud Mount |
| 1N4004 | 400 | 1 | 30 | 1.1 | | 1 | 5 | | 400 | G.P. Rectifier |
| 1N4007 | 1000 | 1 | 30 | 1.1 | | 1 | 5 | | 1000 | G.P. Rectifier |
| BY229-400 | 400 | 7 | 60 | 1.85 | | 20 | | | | SMPS trr = 150nS |
| 1N4936 | 400 | 1 | 30 | 1.3 | | 1 | 5 | | 400 | SMPS trr = 200nS |
| 1N5404 | 400 | 3 | 200 | 1.1 | | 3 | 5 | | 400 | G.P. Rectifier |
| 1N5408 | 1000 | 3 | 200 | 1.1 | | 3 | 5 | | 1000 | G.P. Rectifier |
| P600M | 1000 | 6 | 400 | 0.9 | | 6 | 25 | | 1000 | G.P. Rectifier |
| 6A10 | 1000 | 6 | 350 | 1.0 | | 6 | 10 | | 1000 | G.P. Rectifier |
| FB5006 | 600 | 50 | 500 | 1.2 (per leg) | | 25 | 10 | | 600 | High Current Bridge |
| 3504 | 400 | 35 | 400 | 1.2 (per leg) | | 17.5 | 10 | | 400 | High Current Bridge |
| PO4 | 400 | 6 | | 1.3 (per leg) | | 6 | 10 | | 400 | Medium Duty Mini Bridge |
| KBL04 | 400 | 4 | 200 | 1.1 (per leg) | | 3 | 10 | | 400 | G.P Bridge |
| KBPC804 | 400 | 8 | 200 | 1.0 (per leg) | | 4 | 10 | | 400 | High Current Bridge |
| KBL10/407 | 1000 | 4 | 200 | 1.1 (per leg) | | 2 | 10 | | 1000 | G.P. Bridge SIL pins |
| WO4 | 400 | 1.5 | 50 | 1.1 (per leg) | | 1 | 10 | | 400 | Mini Bridge |
| WO6 | 600 | 1.5 | 30 | 1.1 (per leg) | | 1 | 10 | | 600 | G.P Bridge |
| 2WO6 | 600 | 2 | 50 | 1.0 (per leg) | | 1 | 10 | | 600 | G.P Bridge |
| DB155G | 600 | 1.5 | 50 | 1.1 (per leg) | | 1 | 10 | | 600 | Mini Bridge DIL pins |
| 1N5819 | 40 | 1 | 25 | 0.6 | | 1 | 1mA | | 40 | Schottky Barrier |
| 1N5822 | 40 | 3 | 80 | 0.525 | | 3 | 2mA | | 40 | Schottky Barrier |

## SCRs

| TYPE | CASE | VDRM | IT (R.M.S.) (A) | IFSM (A) | IGT (mA) | VGT | PG (AV) (W) | IH (mA) | DV/DT (V/uS) | COMMENTS (25°C) |
|---|---|---|---|---|---|---|---|---|---|---|
| BT151-500R | TO-220 | 500 | 12 | 100 | 15 max | 1.5 max | 0.5 | 20 max | 200 | (RGK=100) |
| BT169B | TO-92A | 200 | 0.8 | 8 | .2 max | 0.8 max | 0.1 | 5 max | 25 | (RGK=1k) |
| C103B | TO-92 | 200 | 0.8 | 8 | .2 max | 0.8 max | 0.01 | 5 max | 20 | (RGK=1k) |
| C106Y | TO-202 | 30 | 4 | 20 | .2 max | 0.8 max | 0.1 | 5 max | 8 | (RGK=1k) |
| C106D | TO-126/TO-202 | 400 | 4 | 20 | .2 max | 0.8 max | 0.1 | 3 max | 8 | (RGK=1k) |
| C122D | TO-220 | 400 | 8 | 82 | 25 max | 1.5 max | 0.5 | 3 max | 50 | (Gate o/c) |
| C122E | TO-220 | 500 | 8 | 82 | 25 max | 1.5 max | 0.5 | 30 max | 50 typ | (Gate o/c) |
| C203B | TO-92A | 200 | 0.8 | 8 | .2 max | 0.8 max | 0.01 | 5 max | 20 typ | |
| C220D | TO-48 | 400 | 10 | 82 | 25 max | 1.5 max | 0.5 | 30 max | 50 typ | |
| PO103AA | TO-92A | 100 | 0.8 | | .02-.2 | 0.8 max | 0.1 | 5 max | 100 typ | |
| PO103AB | TO-92 | 100 | 0.8 | | .02-.2 | 0.8 max | 0.1 | 5 max | 100 typ | |
| S4008 | TO-220 | 400 | 8 | 85 | 25 max | 1.5 max | 0.5 | 30 max | 50 typ | (Gate o/c) |
| S6008L | TO-220 | 600 | 8 | 85 | 25 max | 1.5 max | 0.5 | 30 max | 50 typ | (Gate o/c) |
| SPS420 | TO-48 | 400 | 20 | 200 | 25 max | 2.0 max | 0.5 | 50 max | 200 | (Gate o/c) |
| TIC126E | TO-220 | 500 | 8 | | 20 max | 1.5 max | 0.5 | 40 max | 100 typ | (Gate o/c) |
| TYN608 | TO-220 | 600 | 8 | 80 | 15 max | 1.5 max | – | 30 max | 200 typ | |
| TYN608G | TO-220 | 600 | 8 | 80 | 25 max | 1.5 max | – | 45 max | 500 | |

# ZENER DATA

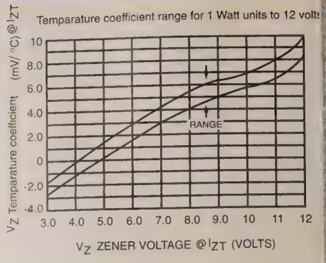
| TYPE NO. ▲ 400mW SERIES | TYPE NO. ▼ 1 WATT SERIES | NOMINAL ZENER VOLT. VZ@IZT (V) | TEST CURRENT IZT (mA) 400mW | 1W |
|---|---|---|---|---|
| 1N746 | 1N4728 | 3.3 | 20 | |
| 1N747 | 1N4729 | 3.6 | 20 | |
| 1N748 | 1N4730 | 3.9 | 20 | |
| 1N750 | 1N4732 | 4.7 | 20 | 53 |
| 1N751 | 1N4733 | 5.1 | 20 | 49 |
| 1N752 | 1N4734 | 5.6 | 20 | 45 |
| 1N753 | 1N4735 | 6.2 | 20 | 41 |
| 1N754,1N957 | 1N4736 | 6.8 | 18.5 | 37 |
| 1N755,1N958 | 1N4737 | 7.5 | 16.5 | 34 |
| 1N756,1N959 | 1N4738 | 8.2 | 15 | 31 |
| 1N757,1N960 | 1N4739 | 9.1 | 14 | 28 |
| 1N758,1N961 | 1N4740 | 10 | 14 | 25 |

▲ (DC Power Dissipation: 400 milliwatts @ 50°C Ambient)
(Derate 3.2mW/°C above 50°C)

| TYPE NO. ▲ 400mW SERIES | TYPE NO. ▼ 1 WATT SERIES | NOMINAL ZENER VOLT. VZ@IZT (V) | TEST CURRENT IZT (mA) 400mW | 1W |
|---|---|---|---|---|
| 1N962 | 1N4741 | 11 | 12.5 | 23 |
| 1N759, 1N963 | 1N4742 | 12 | 11.5 | 21 |
| 1N964 | 1N4743 | 13 | 10.5 | 19 |
| 1N965 | 1N4744 | 15 | 9.5 | 17 |
| 1N966 | 1N4745 | 16 | 8.5 | 15.5 |
| 1N967,1N4112 | 1N4746 | 18 | 7.8 | 14 |
| 1N968 | 1N4747 | 20 | 7 | 12.5 |
| 1N969 | 1N4748 | 22 | 6.2 | 11.5 |
| 1N970 | 1N4749 | 24 | 5.6 | 10.5 |
| 1N971 | 1N4750 | 27 | 5.3 | 9.5 |
| 1N972 | 1N4751 | 30 | 5.3 | 8.5 |
| 1N973 | 1N4752 | 33 | 5.2 | 7.5 |

▼ (DC Power Dissipation: 1 W @ 50°C Ambient)
(Derate 6.67mW/°C above 50°C)

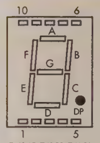
This range will dissipate up to 3W @ 75°C with 10mm lead length as heatsink.



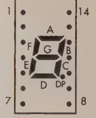
# DISCRETE OPTOELECTRONICS

## 7-SEGMENT LEDS

| | LTS312AR Z 4117 | LTS313AR Z 4103 | LTS5303AR Z 4150 | LTS5503AE Z 4151 | LTS546AR Z 4145 | 30240A Z 4118 | LSD5115 Z-4130 | LSD5114 Z4133 | LSD5365 Z4146 |
|---|---|---|---|---|---|---|---|---|---|
| **Characteristics** | | | | | | | | | |
| Common Terminal Pol. | Anode | Cathode | Cathode | Anode | Cathode | Anode | Cathode | Cathode | Anode |
| Digit Size | 7.6mm | 14.2mm | 14.2mm | 13.2mm | 7.6mm | 7.6mm | 13.1mm | 14.2mm | 14.2mm |
| Colour | Red | Red | Orange | Red | Green | Red | Red | Orange | Red |
| Av. Fwd. Seg. Current | 25mA | 25mA | 25mA | 25mA | 25mA | 25mA | 25mA | 25mA | 25mA |
| Segment Voltage | 1.7 | 1.7 | 2.1 | 1.7 | 2.1 | 2.0 | 1.7 | 2.0 | 1.7 |
| Min. Rev. Brkdn. Volt. | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Max. Rev. Current | 100uA | 100uA | 100uA | 100uA | 100uA | 100uA | 10uA | 10uA | 10uA |
| Seg. Intensity (typ.) | 450ucd | 500ucd | 2200ucd | 500ucd | 2000ucd | 750ucd | 6000ucd | 4500ucd | 8500ucd |
| Max. Seg. Dissipation | 55mW | 55mW | 75mW | 55mW | 75mW | 85mW | 110mW | 100mW | 110mW |
| **Connections** | | | | | | | | | |
| Seg. A | 1 | 7 | 7 | 7 | 10 | 1 | 7 | 7 | 7 |
| Seg. B | 13 | 6 | 6 | 6 | 9 | 13 | 6 | 6 | 6 |
| Seg. C | 10 | 4 | 4 | 4 | 8 | 10 | 4 | 4 | 4 |
| Seg. D | 8 | 2 | 2 | 2 | 5 | 8 | 2 | 2 | 2 |
| Seg. E | 7 | 1 | 1 | 1 | 4 | 7 | 1 | 1 | 1 |
| Seg. F | 2 | 9 | 9 | 9 | 2 | 2 | 9 | 9 | 9 |
| Seg. G | 11 | 10 | 10 | 10 | 3 | 11 | 10 | 10 | 10 |
| Dec. Pt. | 9 | 5 | 5 | 5 | 7 | 6, 9 | 5 | 5 | 5 |
| Common | 3, 14 | 3, 8 | 3, 8 | 3, 8 | 1, 6 | 3, 14 | 3,8 | 3,8 | 3,8 |



Z 4145 Z4150 Z4151
Z4130 Z4133 Z 4146



Z4103 Z4105 Z4117 Z4118

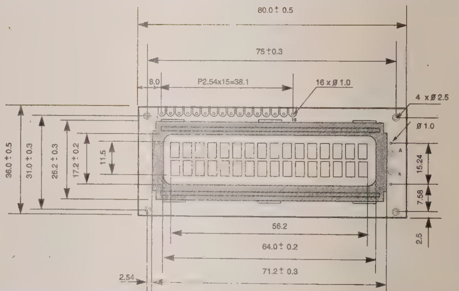
Note: Not all devices in this section are stocked by Dick Smith Electronics.

# Z4170/Z4172

The Z-4170 and Z4172 are self-contained Liquid Crystal Displays (LCDs). Both modules can display 2 rows of 16 characters, and both include a CMOS interface and drive IC to enable simply connection to a 4 or 8 -bit microprocessor. 96 alpha numeric characters are available from an in-built character generator, and up to 8 characters can be user defined. The Z-4172 includes a back-light feature. A full data sheet is included with each unit,

**Interface Pin Functions**

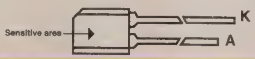
| Pin No | Symbol | Function |
|---|---|---|
| 1 | Vss | Ground (0V) |
| 2 | Vdd | Logic supply (+5V) |
| 3 | VO | Contrast Adjustment |
| 4 | RS | Data/Instruction select |
| 5 | R/W | Read/Write select |
| 6 | E | Signal enable |
| 7-14 | D0-D7 | Data Bus |
| 15 | A | LED Backlight (Z-4172 only) |
| 16 | K | LED Backlight (Z-4172 only) |



## Z 1956 SILICON P-I-N INFRA RED PHOTO DIODE

Silicon pin photo diode encapsulated in a black plastic package which acts as an infra-red filter.

| | | |
|---|---|---|
| Reverse Voltage | Vr max | 30V |
| Power Dissipation @ 25°C | Ptot | 150mW |
| Junction Temperature | Tj | 100°C |
| Dark Reverse Current (Vr=10V Ee=0) | Idr | 30nA |
| Light Reverse Current (Ee=1mW/cm²) | Ilr | 50uA |
| Wavelength of Peak Response | λ pk | 950nm |



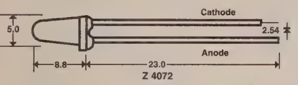
## Z 3235 GAAS INFRA RED EMITTING DIODE

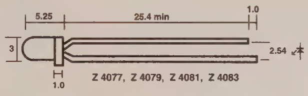
High Intensity Gallium Arsenide infra-red emitting diodes intended for remote control applications. Smoke coloured end looking encapsulation.

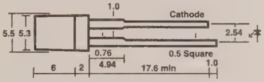
| | | |
|---|---|---|
| Forward Voltage | Vf | 1.2V @20mA |
| Continuous Reverse Voltage | Vr | 5V |
| Forward Current (d.c.) | If max | 50mA |
| Peak Forward current (300pps, 1us pulse) | Ifpk | 3A |
| Total Power Dissipation up to Tamb=25°C | Ptot max | 100mW |
| Junction Temperature | Tj | 100°C |
| Radiant incidence @ If=20mA | Eo | 1mW/cm² |
| Wavelength of Peak Emission | λ pk | 940nm |

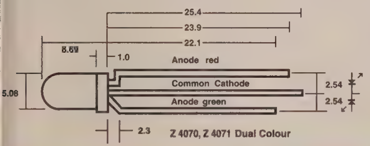
## HIGH PERFORMANCE LEDS

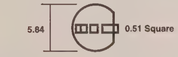
| Type | | Nominal Size (mm) | Lens | Fwd. Voltage (@20mA) | Max. Cont. Fwd. Current (mA) | Max. Rev. Voltage | Luminous Intensity (mcd) | @ current (mA) | Peak Wavelength |
|---|---|---|---|---|---|---|---|---|---|
| Z 4192 | Green | 2 dia. | Green Diffused | 2.1 | 30 | 5 | 1.3 | 10 | 569 |
| Z 3800 | White | 3 dia. | Water Clear | 3.5 | 30 | 5 | 1,500 | 20 | 460 |
| Z 3820 | Blue | 3 dia. | Water Clear | 3.5 | 30 | 5 | 700 | 20 | 470 |
| Z 4010 | Red | 3 dia. | Water Clear | 1.9 | 90 | 5 | 45 | 25 | 635 |
| Z 4012 | Green | 3 dia. | Water Clear | 2.1 | 90 | 5 | 45 | 25 | 565 |
| Z 4014 | Yellow | 3 dia. | Water Clear | 2.2 | 60 | 5 | 45 | 20 | 583 |
| Z 4077 | Red | 3 dia. | Red Diffused | 2.1 | 15 | 5 | 2 | 10 | 697 |
| Z 4079 | Green | 3 dia. | Green Diffused | 2.2 | 30 | 5 | 6 | 10 | 565 |
| Z 4081 | Yellow | 3 dia. | Yellow Diffused | 2.2 | 20 | 5 | 5 | 10 | 585 |
| Z 4083 | Orange | 3 dia. | Orange Diffused | 2.0 | 30 | 5 | 5 | 10 | 635 |
| Z 3902 | Blue | 5 dia. | Water Clear | 3.5 | 30 | 5 | 1,800 | 20 | 475 |
| Z 3905 | Blue | 5 dia. | Water Clear | 3.8 | 30 | 5 | 5,600 | 20 | 475 |
| Z 3980 | White | 5 dia. | Water Clear | 4.0 | 30 | 5 | 2,300 | 20 | - |
| Z 3981 | White | 5 dia. | Water Clear | 4.0 | 30 | 5 | 5,600 | 20 | - |
| Z 3982 | White | 5 dia. | Water Clear | 5 | 20 | 5 | 8,000 | 30 | 456 |
| Z 3995 | White | 5 dia. | Water Clear | 3.6 | 20 | 5 | 300 | 30 | 40 |
| Z 4008 | Green | 5 dia. | Water Clear | 3.5 | 30 | 5 | 2,200 | 20 | 525 |
| Z 4013 | Green | 5 dia. | Water Clear | 3.5 | 30 | 5 | 10,000 | 20 | 525 |
| Z 4015 | Green | 5 dia. | Water Clear | 3.5 | 30 | 5 | 14,000 | 20 | 660/567 |
| Z 4021 | Red | 5 dia. | Water Clear | 1.9 | 90 | 5 | 125 | 20 | 660 |
| Z 4023 | Green | 5 dia. | Water Clear | 2.2 | 90 | 5 | 140 | 20 | 660 |
| Z 4025 | Sunset Red | 5 dia. | Water Clear | 2.2 | 60 | 5 | 140 | 20 | 640 |
| Z 4031 | Sunset Red | 5 dia. | Water Clear | 2.0 | 50 | 5 | 8,000 | 20 | 640 |
| Z 4009 | Yellow | 5 dia. | Water Clear | 2.1 | 30 | 5 | 5,000 | 20 | 590 |
| Z 4072 | Red | 5 dia. | Water Clear | 1.8 | 40 | 4 | 1,000 | 20 | 660 |
| Z 4074 | Red | 5 dia. | Water Clear | 1.8 | 40 | 4 | 2,300 | 20 | 660 |
| Z 4085 | Red | 5 dia. | Red Diffused | 2.1 | 15 | 5 | 4 | 10 | 697 |
| Z 4087 | Green | 5 dia. | Green Diffused | 2.2 | 30 | 5 | 10 | 10 | 565 |
| Z 4089 | Yellow | 5 dia. | Yellow Diffused | 2.2 | 20 | 5 | 8 | 10 | 585 |
| Z 4091 | Orange | 5 dia. | Orange Diffused | 2.0 | 30 | 5 | 10 | 10 | 635 |
| Z 4071 | Red/Green | 5 dia. | White Diffused | 2.0 | 25 | 5 | 126/49 | 20 | 660/567 |
| Z 4040 | Flashing Red | 5 dia. | Red | 3 to 10 | 80 | 5 | 1.1 to 4 | 20 | 697 |
| Z 4044 | Flashing Red | 5 dia. | Red | 12 | 60 | 5 | 390 | 25 | 660 |
| Z 4046 | Flashing Green | 5 dia. | Green | 12 | 60 | 5 | 98 | 25 | 567 |
| Z 4060 | Red | 10 dia. | Red Diffused | 2.0 | 30 | 5 | 40 | 20 | 625 |
| Z 4067 | Red | 10 dia. | Water Clear | 1.9 | 50 | 5 | 6,000 | 20 | 660 |
| Z 4068 | Green | 10 dia. | Water Clear | 3.5 | 30 | 5 | 7,000 | 20 | 512 |
| Z 4093 | Red | 1.8 x 5.5 | Red Diffused | 2.1 | 15 | 5 | 0.4 | 10 | 697 |
| Z 4095 | Green | 1.8 x 5.5 | Green Diffused | 2.2 | 30 | 5 | 1 | 10 | 565 |
| Z 4097 | Yellow | 1.8 x 5.5 | Yellow Diffused | 2.2 | 20 | 5 | 0.8 | 10 | 585 |
| Z 4200 | Red | 1.8 x 5.0 | Red | 2.1 | 30 | 5 | 5.1 | 20 | 690 |
| Z 4202 | Green | 1.8 x 5.0 | Green | 2.1 | 30 | 5 | 27 | 20 | 565 |
| Z 4204 | Yellow | 1.8 x 5.0 | Yellow | 2.1 | 30 | 5 | 27 | 20 | 565 |

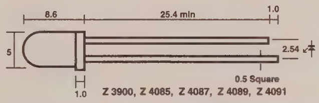


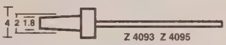












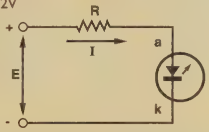
## FLASHING LEDS

| | Z 4040 RED | Z 4044 RED | Z 4046 GREEN | UNITS |
|---|---|---|---|---|
| Nominal Size | 5 | 5 | 5 | mm |
| Operating Voltage Range | 3-10 | 3-15 | 3-15 | V |
| Intensity (typ. @ 10V) | 36 | 390 | 98 | mcd |
| Peak Wavelength | 660 | 660 | 567 | nm |
| Flash Rate (approx @ 10V) | 2 | 2.4 | 2.4 | Hz |
| Duty Cycle | 25 | 25 | 25 | % |
| Max. Rev. Voltage | 0.6 | 5 | 5 | V |

## USING LEDS

When using a Light Emitting Diode (LED) as an indicator, use the following formula to determine series resistance for various voltages: R = (E-Vf) x 1000/I, where R is the resistance in Ohms, E is the DC supply voltage, I is the LED current in mA and Vf is the forward voltage drop of the LED, typ. 2V

ie. With Vf=2V, LED current=20mA,
for 6V, R=220 Ohms
9V, R=330 Ohms
12V, R=560 Ohms
24V, R=1200 Ohms



Note: This does not apply to flashing LEDs. Flashing LEDs can be driven from a voltage source, ie without a resistor.

## Z 4801 LIGHT DEPENDENT RESISTOR (LDR)

| Ratings | | Characteristics | |
|---|---|---|---|
| Max. Voltage | 100V | Dark Resistance | > 10 M Ohm |
| Power Dissipation | 50mW | Resistance @ 10 Lux | 48-140k Ohm |
| (at 25°C) | | Peak Spectral Response | 560-620 nm |

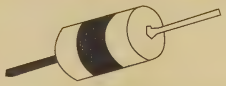
The approximate relationship between illumination and resistance is given by,

$$R = AL^{-0.85}$$

where; R = resistance, A = a constant (approx. 340-991 x $10^3$), L = light level in Lux

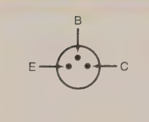
## Z-4710 BR - 100 - 03 DIAC

| | |
|---|---|
| Vs | 28 – 36V |
| $V_{SYM/VRRM}$ | 3V |
| Is (max) | 100uA |
| ΔVt | 6V @ 10mA |

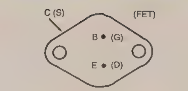


## SEMICONDUCTOR OUTLINES

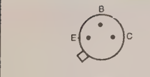
BOTTOM VIEW UNLESS OTHERWISE STATED



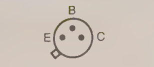
TO-1



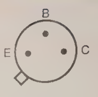
TO-3



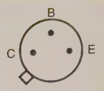
TO-5



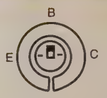
TO-18



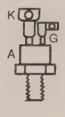
TO-39

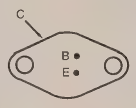


79-03
TO-39(A)

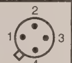


TO-39(mod)

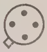




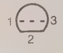
TO-66



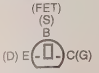
| TO-72 | PIN | T(25) | T(28) | FET N(25) |
|---|---|---|---|---|
| | 1 | E | B | S |
| | 2 | B | E | D |
| | 3 | C | C | G |
| | 4 | CASE | CASE | CASE |



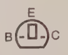
TO-72



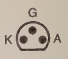
| TO-92 | PIN | 71 | | | | 74 | | 76 | | 77 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | C | G | C | G | B | S | E | D | E | D |
| | 2 | E | D | B | S | C | G | C | G | B | S |
| | 3 | B | S | E | D | E | D | B | S | C | G |



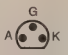
TO-92 VAR.1



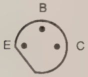
TO-92 VAR.2



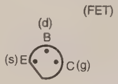
TO-92 SCR



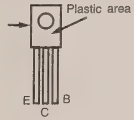
TO-92 A SCR



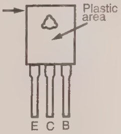
TO-105



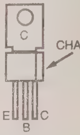
TO-106


Plastic area
E
C
B

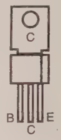
TO-126


Plastic area
E C B

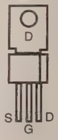
TO-127


C
CHAMFER
E
B
C

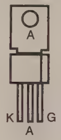
TO-202



TO-202R

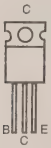


TO-202FET

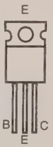


TO-202SCR

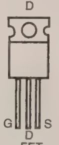
TO-202



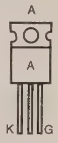
TO-220



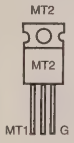
TO-220(A)



FET

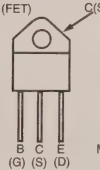


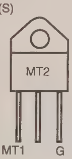
SCR


MT2
MT2
MT1
G

TRIAC

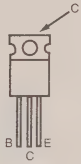
TO-220


(FET)
C(S)
B C E
(G) (S) (D)

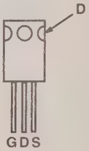


TRIAC

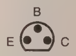
TOP-3



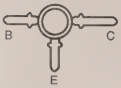
TOP-66



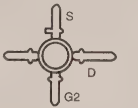
TO-247



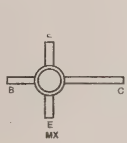
SOT-30



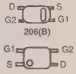
SOT-37(2)
TOP VIEW



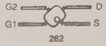
SOT-103
TOP VIEW



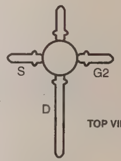
MX
TOP VIEW


D
S
G2
G1
206(B)
G1
G2
S
D
206

TOP VIEW

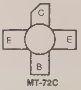


TOP VIEW

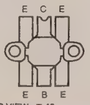


TOP VIEW

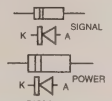
2-6FIA



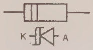
MT-72C
TOP VIEW



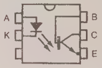
TOP VIEW T-40


SIGNAL
K
A
POWER
K
A

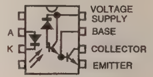
DIODES



ZENER DIODES



D6
TOP VIEW


A
K
VOLTAGE SUPPLY
BASE
COLLECTOR
EMITTER

D8
TOP VIEW

## R 1797 NTC THERMISTOR

These Negative Temperature Coefficient (NTC) Thermistors are useful for temperature sensing, temperature compensation, automatic gain control and fluid flow monitoring. They are not for use in conducting, reducing or aggressive gases or fluids. The resistance of the R 1797 can be calculated from the formula:

$$R = Ae^{B/T}$$

where, R is the thermistor resistance in Ohms,
T is the temperature in Kelvins,
e is the natural logarithim base (2.718) and
A & B are constants which should be calculated from measurements on each particular thermistor for best accuraxy.

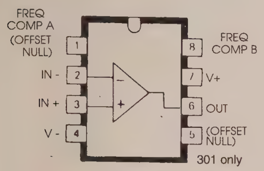
For nominal values of B and R, A is approximately 0.0277.

### Specifications

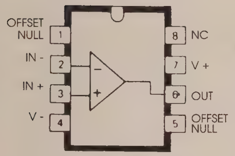
Maximum power dissipation: 0.5W
Operating temperature range:
at zero power: -25°C to 125°C
at maximum power: 0 to 55°C
Thermal time constant: 17s approx.
Resistance Value at 25°C: 100k Ohms +/-10%
B (@ 25°C and 85°C): 4500 +/-5%
Temp. Co. -5.2%/K

| TYPE | DEVICE | INPUT OFFSET VOLT. MAX (mV) | INPUT OFFSET CURRENT MAX (nA) | INPUT BIAS CURRENT MAX (nA) | VOLT. GAIN MIN (VOLTS/V) | UNITY GAIN B.W.TYP (MHz) | SLEW RATE AV=1 TYP (V/US) | OUTPUT VOLT. SWING R1=10K (VS=+/-15) (V) | SUPPLY VOLTAGE MIN (V) | SUPPLY VOLTAGE MAX (V) | CMRR MIN (dB) | DIFFERENTIAL INPUT VOLT. (V) | SUPPLY CURRENT TA=25C (NOTE 1) MAX (mA) | INTERNAL FREQ. COMP. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Single Op Amps** | | | | | | | | | | | | | |
| LM301 | GP Amplifier | 10 | 70 | 300 | 15k | 1 | 0.5 | +/-12 | +/-3 | +/-18 | 70 | +/-30 | 3 | No |
| LM741 | GP Amplifier | 7.5 | 300 | 800 | 15k | 1 | 0.5 | +/-12 | +/-3 | +/-18 | 70 | +/-30 | 2.8 | Yes |
| LM308 | Low Input Current | 10 | 1.5 | 10 | 15k | 1 | 0.3 | +/-13 | +/-2 | +/-18 | 80 | +/-1.0(Note 2) | 0.8 | No |
| NE5534 | Low Noise | 5 | 400 | 2000 | 15k | 10 | 6 | +/-12 | +/-3 | +/-22 | 70 | +/-0.5(Note 2) | 8 | No |
| OP27 | Lo Noise Precision | 0.22 | 135 | 150 | 450k | 5 | 1.7 | +/-11 | +/-4 | +/-22 | 96 | +/-0.7(Note 2) | 5.7 | Yes |
| TL071 | JFET Lo Noise | 13 | 2 | 7 | 15k | 3 | 13 | +/-12 | +/-3.6 | +/-18 | 70 | +/-30 | 2.5 | Yes |
| LF351 | JFET Lo Noise | 13 | 4 | 8 | 15k | 4 | 13 | +/-12 | +/-4 | +/-18 | 70 | +/-30 | 3.4 | Yes |
| TLC251 | Prog Lo Power CMOS | 10 | 0.3 | 0.6 | 7.5k | 0.7 | 0.6 | 7.8(Vs=10V) | 1.4 | 18 | 60 | +/-18 | 0.22 | Yes |
| CA3130 | MOSFET Input | 15 | 0.03 | 0.05 | 50k | 4 | 10 | +/-6(Vs=+/-8) | +/-2.5 | +/-8 | 70 | +/-8 | 15 | No |
| CA3140 | MOSFET Input | 15 | 0.03 | 0.05 | 20k | 4.5 | 9 | +/-12 | +/-2 | +/-18 | 70 | +/-8 | 6 | Yes |
| LM10C | Inc.Voltage Ref. | 5 | 3 | 40 | 15k | 0.1 | * | +/-14.6 | 1.1 | 45 | 87 | +/-40 | 0.27 | Yes |
| LM3080 | Transconductance | 5 | 500 | 5000 | 5.4 mmho | 2@Aol | 50 | +/-12 | +/-2 | +/-18 | 80 | +/-5 | typ 1.1 | No |
| LM627 | Precision op-amp | 0.1 | 25 | 25 | 4M | 14 | 4.5 | +/-14.0 | +/-3.5 | +/-18 | 120 | 25mA(Note 2) | 4.8 | Yes |
| | **Dual Op Amps** | | | | | | | | | | | | | |
| LM1458 | GP Amplifier | 7.5 | 300 | 800 | 15k | 1 | 0.5 | +/-12 | +/-3 | +/-18 | 70 | +/-30 | 5.6 | Yes |
| LM358 | Low Power | 9 | 150 | 500 | 15k | 1 | 0.5 | +/-12 | +/1.5 | +/-16 | 65 | 32 | 2 | Yes |
| LM833 | Hi-Fi | 5 | 200 | 1000 | 30k | 15 | 7 | +/-12 | +/-5 | +/-18 | 80 | +/-30 | 8 | Yes |
| TL072 | JFET Lo Noise | 13 | 2 | 7 | 15k | 3 | 13 | +/-12 | +/-3.6 | +/-18 | 70 | +/-30 | 5 | Yes |
| LF353 | JFET Lo Noise | 13 | 4 | 8 | 15k | 4 | 13 | +/-12 | +/-6 | +/-18 | 70 | +/-30 | 6.5 | Yes |
| LM13600 | Transconductance | 4 | 600 | 8000 | 5.4mmho | 2@Aol | 50 | +/-12 | +/-2 | +/-18 | 80 | +/-5 | typ 2.6 | No |
| | **Quad Op Amps** | | | | | | | | | | | | | |
| LM324 | GP Amplifier | 9 | 150 | 500 | 15k | 1 | 0.5 | +/-13 | +/-1.5 | +/-16 | 65 | 32 | 3 | Yes |
| UA4136 | GP Low Noise | 7.5 | 300 | 800 | 15k | 3 | 1 | +/-12 | +/-2 | +/-18 | 70 | +/-30 | 11 | Yes |
| TL074 | JFET Lo Noise | 13 | 2 | 7 | 15k | 3 | 13 | +/-12 | +/-3.6 | +/-18 | 70 | +/-30 | 10 | Yes |
| LF347 | JFET Lo Noise | 13 | 4 | 8 | 15k | 4 | 13 | +/-12 | +/-4.5 | +/-18 | 70 | +/-30 | 11 | Yes |
| LM614 | Inc.Volt Ref. | 7 | 50 | 250 | 25k | >1 | 0.8 | 12.4 | +3 | +36 | 80 | 36 | typ 0.8 | Yes |
| LM3900 | Norton Amp | * | * | 200 | 1.2k | 2.5 | 20 | 10 | +4 | +32 | * | * | 10 | Yes |

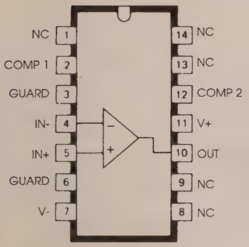
* Not Specified, Note 1: Supply current for all channels in the package, Note 2: Inputs have shunt diode protection, current must be limited, Note 3: Dick Smith Electronics may not stock all devices shown


FREQ COMP A (OFFSET NULL)
IN -
IN +
V -
FREQ COMP B
V+
OUT
(OFFSET NULL)
301 only

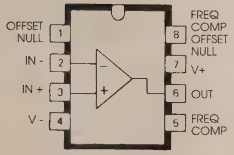
301,308


OFFSET NULL
IN -
IN +
V -
NC
V +
OUT
OFFSET NULL

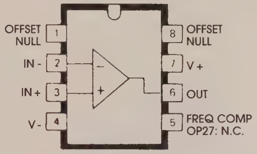
741, TL-071, LF351, AD711


NC
COMP 1
GUARD
IN-
IN+
GUARD
V-
NC
NC
COMP 2
V+
OUT
NC
NC

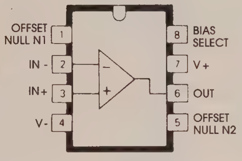
308


OFFSET NULL
IN -
IN +
V -
FREQ COMP OFFSET NULL
V+
OUT
FREQ COMP

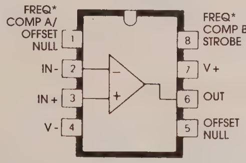
NE5534


OFFSET NULL
IN -
IN +
V-
OFFSET NULL
V +
OUT
FREQ COMP OP27: N.C.

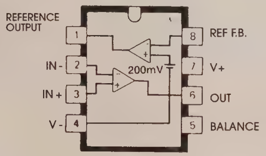
LM627, OP27


OFFSET NULL N1
IN -
IN+
V-
BIAS SELECT
V +
OUT
OFFSET NULL N2

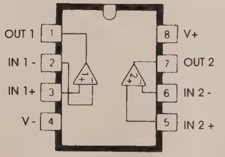
TLC251


FREQ* COMP A/ OFFSET NULL
IN -
IN +
V -
FREQ* COMP B/ STROBE
V +
OUT
OFFSET NULL

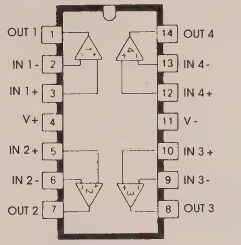
CA-3130, CA-3140
*CA-3130 ONLY


REFERENCE OUTPUT
IN -
IN +
V -
200mV
REF F.B.
V+
OUT
BALANCE

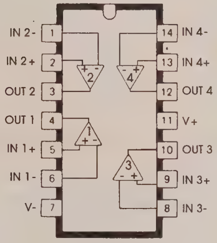
LM-10


OUT 1
IN 1 -
IN 1+
V -
V+
OUT 2
IN 2 -
IN 2 +

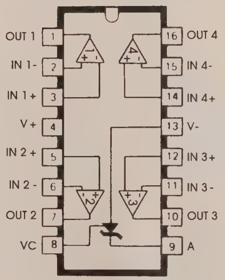
TL-072, LF-353, LM-833,
1458, AD712,LM358


OUT 1
IN 1 -
IN 1 +
V +
IN 2 +
IN 2 -
OUT 2
OUT 4
IN 4 -
IN 4 +
V -
IN 3 +
IN 3 -
OUT 3

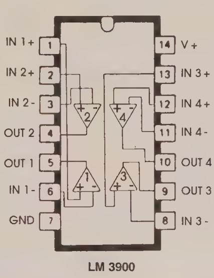
LM324, TL-074, LF347


IN 2 -
IN 2 +
OUT 2
OUT 1
IN 1 +
IN 1 -
V-
IN 4-
IN 4+
OUT 4
V+
OUT 3
IN 3+
IN 3-

UA4136

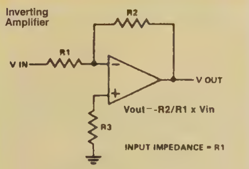

OUT 1
IN 1 -
IN 1 +
V +
IN 2 +
IN 2 -
OUT 2
VC
OUT 4
IN 4 -
IN 4 +
V -
IN 3 +
IN 3 -
OUT 3
A

LM 614

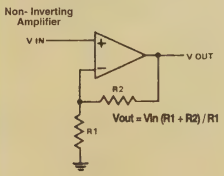

IN 1 +
IN 2 +
IN 2 -
OUT 2
OUT 1
IN 1 -
GND
V +
IN 3 +
IN 4 +
IN 4 -
OUT 4
OUT 3
IN 3 -

LM 3900

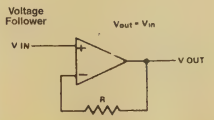
## AMPLIFIER CONFIGURATIONS


R2
R1
V IN
V OUT
R3
Vout - -R2/R1 x Vin
INPUT IMPEDANCE = R1

Inverting Amplifier


V IN
V OUT
R2
R1
Vout = Vin (R1 + R2) / R1

Non- Inverting Amplifier


Vout = Vin
V IN
V OUT
R

Voltage Follower

# 555 TIMER (LM/NE555 BIPOLAR, TLC555 CMOS)

### General

The 555 Timer is a highly versatile low-cost IC specifically designed for precision timing applications. It can also be used in monostable multi-vibrator, astable multi-vibrator and Schmitt trigger applications.

### Bipolar 555

The 555 has many attractive features. It can operate from 4.5 Volts to 16 Volt. Its output can source (supply) or sink (absorb) load current up to a maximum of 200mA and so can directly drive loads such as relays, LEDs, low-power lamps, and high impedance speakers. When used in the 'timing' mode, the IC can readily produce accurately timing periods variable from a few microseconds to several hundred seconds via a single R-C network. Timing periods are virtually independent of supply rail voltage, have a temperature coefficient of only .005% per °C, can be started via a TRIGGER command signal, and can be aborted by a RESET command signal.

When used in the monostable mode, the IC produces output pulses with typical rise and fall times of a mere nS.

When used in the astable mode both the frequency and the duty cycle of the waveform can be accurately controlled with two external resistors and one capacitor.

### CMOS 555

Due to its high impedance inputs (typically $10^{12}\Omega$), it is capable of producing accurate time delays and oscillations while using less expensive, smaller timing capacitors than NE555. Like the NE555, the TLC555 achieves both monostable (using one resistor and one capacitor) and astable (using two resistors and one capacitor) operation. In addition, 50% duty cycle astable operation is possible using only a single resistor and one capacitor. The TLC555 will operate at frequencies up to 2MHz and is fully compatible with CMOS, TTL, and MOS logic.

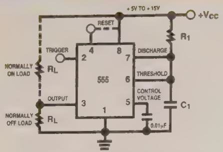
While the complementary CMOS output is capable of sinking over 100mA and sourcing over 10mA, the TLC555 exhibits greatly reduced supply current spikes during output transitions. This minimises the need for the large decoupling capacitors required by the NE555.

### Specifications

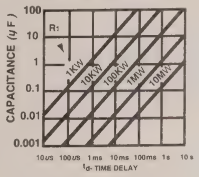
| VCC = 15V UNLESS OTHERWISE STATED<br>TA = 25°C<br>PARAMETERS | CONDITIONS | LM/NE555C LIMITS MIN | LM/NE555C LIMITS TYP | LM/NE555C LIMITS MAX | CONDITIONS | TLC555C LIMITS MIN | TLC555C LIMITS TYP | TLC555C LIMITS MAX |
|---|---|---|---|---|---|---|---|---|
| Supply Voltage | | 4.5 | | 16V | | 2 | | 18 |
| Supply Current | (RL = ∞, Vop = low) | | 10mA | 15mA | (RL=∞, Vop=low) | | 360uA | |
| Power Dissipation<br>600mW | | | | 600mW | | | | |
| Threshold Voltage | (% of Vcc) | | 67% | | (% of Vcc) | | 67% | |
| Threshold Current | | | 0.1 | 0.25uA | (Vcc=5V) | | 10pA | |
| Trigger Voltage | (% of Vcc) | | 33% | | (% of Vcc) | | 33% | |
| Trigger Current | | | 0.5uA | | (Vcc=5V) | | 10pA | |
| Reset Voltage | | 0.4 | 0.5 | 1V | | 0.4 | 1.1 | 1.5 |
| Reset Current | | | 0.1 | 0.4mA | (Vcc=5V) | | 10pA | |
| High Level Output | (Iol=100mA) | 12.75 | 13.3V | | (Iol=10mA) | 12.5V | 14.2V | |
| Low Level Output | (Iol=100mA) | | 2 | 2.5V | (Iol=100mA) | | 1.28V | 3.2V |
| Output Current | Sink<br>Source | | | 200mA<br>200mA | | | 100mA<br>10mA | |
| Initial Error of Timing Interval | | | 1% | | | | 1% | |

### Function Table

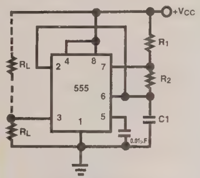
| RESET | TRIGGER VOLTAGE | THRESHOLD VOLTAGE | OUTPUT | DISCHARGE SWITCH |
|---|---|---|---|---|
| Low | Irrelevant | Irrelevant | Low | On |
| High | <1/3 Vcc | Irrelevant | High | Off |
| High | >1/3 Vcc | >2/3 Vcc | Low | On |
| High | >1/3 Vcc | <2/3 Vcc | As previously established | |


+5V TO +15V
+Vcc
RESET
R1
TRIGGER
4
8
2
7
DISCHARGE
NORMALLY ON LOAD
RL
555
6
THRESHOLD
CONTROL VOLTAGE
OUTPUT
3
5
C1
1
NORMALLY OFF LOAD
RL
0.01μF

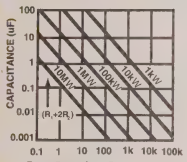
Basic Monostable Circuit



Time Delay vs R1 and C1


+Vcc
R1
RL
2
4
8
7
555
R2
6
3
1
5
C1
RL
0.01μF

Basic Astable Circuit



Free Running Frequency

### Monostable Operation

In the monostable mode, the timer functions as a one-shot. Referring to circuit the external capacitor is initially held discharged by a transistor inside the timer.

When a negative trigger pulse is applied to lead 2, the flip-flop is set, releasing the short circuit across the external capacitor and drives the output HIGH. The voltage across the capacitor, increases exponentially with th time constant t=R1C1. When the voltage across the capacitor equals 2/3 VCC, the comparator resets the flip-flo which then discharges the capacitor rapidly and drives the output to its LOW state.

The circuit triggers on a negative-going input signal when th level reaches 1/3 VCC. Once triggered, the circuit remains i this state until the set time has elapsed, even if it is triggere again during this interval. The duration of the output HIGH state is given by t=1.1 R1C1. The timing interval is independent of supply. When Reset is not used it should be tied high to avoid any possibility of false triggering.

### Astable Operation

When the circuit is connected as shown it triggers itself an free runs as a multivibrator. The external capacitor charges through R1 and R2 and discharges through R2 only. Thus th duty cycle may be precisely set by the ratio of these two resistors.

In the astable mode of operation, C1 charges and discharges between 1/3 VCC and 2/3 VCC. As in the triggered mode, the charge and discharge times and therefore frequency are independent of the supply voltage.

The charge time (output HIGH) is given by:

$$t1 = 0.693\ (R1 + R2)\ C1$$

and the discharge time (output LOW) by:

$$t2 = 0.693\ (R2)\ C1$$

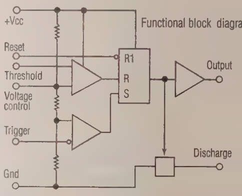
Thus the total period T is given by:

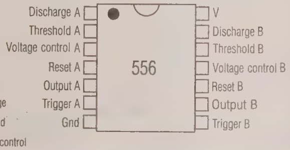
$$T = t1 + t2 = 0.693\ (R1 + 2R2)\ C1$$

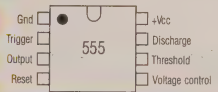
The frequency of oscillation is then:

$$f = \frac{1}{T} = \frac{1.44}{(R1 + 2R2)\ C1}$$

The duty cycle is given by: $D = \dfrac{R2}{R1 + 2R2}$


+Vcc
Functional block diagra
Reset
R1
Output
Threshold
R
S
Voltage control
Trigger
Discharge
Gnd


Discharge A
Threshold A
Voltage control A
Reset A
Output A
Trigger A
Gnd
556
V
Discharge B
Threshold B
Voltage control B
Reset B
Output B
Trigger B


Gnd
Trigger
Output
Reset
555
+Vcc
Discharge
Threshold
Voltage control

# 723 VOLTAGE REGULATOR

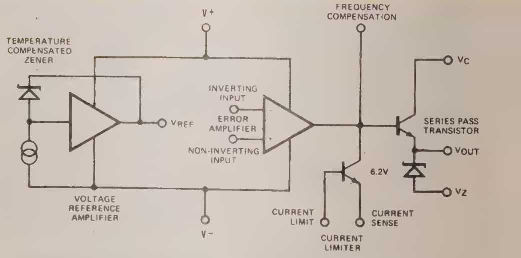
The 723 voltage regulator is a versatile device which is intended for use with positive or negative supplies, as either a series, shunt or switching regulator. It includes a temperature compensated voltage reference, error amplifier, series pass transistor and current limit circuitry.

Output voltage is adjustable between 2 and 37 volts, and the internal transistor can supply up to 150mA. Output current capability can be increased to several amps with an external pass transistor.

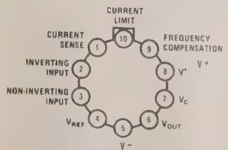
### Specifications

| ABSOLUTE MAXIMUM RATINGS | | |
|---|---|---|
| Input Voltage | | 40V |
| Diff. Input Voltage (error amp) | | +/-5V |
| Com. Mode Input Voltage (error amp) | | 8V |
| Current from ref | | 15mA |
| Current from Vz | | 25mA |
| Maximum Output Current | | 150mA |
| Maximum Dissipation 25°C: | Dip | 660mW |
| | Metal Can | 800mW |

| CHARACTERISTICS | | | | |
|---|---|---|---|---|
| Input Voltage Range | 9.5 | – | 40 | V |
| Output Voltage Range | 2 | – | 37 | V |
| Reference Voltage | 6.8 | 7.15 | 7.5 | V |
| Standby Current Drain | – | 2.3 | 4 | mA |
| Current Limit Sense Voltage | – | 0.65 | _ | V |
| Thermal Resistance J-A: Dip | – | 105 | _ | K/W |
| Metal Can | – | 165 | _ | K/W |


V+
FREQUENCY COMPENSATION
TEMPERATURE COMPENSATED ZENER
VC
INVERTING INPUT
VREF
ERROR AMPLIFIER
SERIES PASS TRANSISTOR
NON-INVERTING INPUT
VOUT
6.2V
VZ
VOLTAGE REFERENCE AMPLIFIER
CURRENT LIMIT
CURRENT SENSE
V-
CURRENT LIMITER

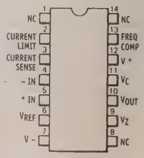
### Metal Can Package


CURRENT LIMIT
10
CURRENT SENSE
1
9
FREQUENCY COMPENSATION
INVERTING INPUT
2
8
V+
NON-INVERTING INPUT
3
7
VC
VREF
4
5
6
VOUT
V-

Note: Pin 5 connected to case

Top View

### Dip Package


1
NC
14
NC
2
13
FREQ COMP
CURRENT LIMIT
3
12
V+
CURRENT SENSE
4
11
- IN
VC
5
10
+ IN
VOUT
6
9
VREF
VZ
7
8
V-
NC

# VOLTAGE REGULATORS

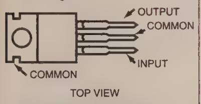
## Three Terminal Voltage Regulators

These voltage regulators almost make power supply building unnecessary since they require only a filtered DC voltage input. They are essentially indestructible (if used within manufacturer's specs) because of internal current limiting and thermal shutdown should a short occur. They are ideally suited to local, on-board regulation simplifying power supply distribution systems. Excellent for TTL and project supplies.
With the advent of microprocessors and microcomputers, these regulators have been used extensively in power supplies for such systems. This type of use typifies their versatility and reliability. Another area of supply regulation use is with analogue operational amplifiers. These circuits usually call for both + and – complementary rail voltages. These three terminal devices ideally suit such requirements.

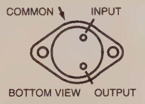
The addition of protection diodes, as shown in the 317/350 application circuit, is recommended if there is any possibility of the regulator input or output being shorted to ground. These may also be necessary if significant (1uF) capacitance is connected between ground and either the common or output terminals of the regulator.

| TYPE | POL. | CASE | VIN MAX |  | VOUT |  | IOUT (NOM) | DROP-OUT |
|---|---|---|---|---|---|---|---|---|
|  |  |  |  | MIN | TYP. | MAX | A. | VOLT. |
| 78L05Z | pos. | TO-92 | 30 | 4.8 | 5 | 5.2 | 0.1 | 2.2 |
| 78L12Z | pos. | TO-92 | 30 | 11.5 | 12 | 12.5 | 0.1 | 2.2 |
| 78L15Z | pos. | TO-92 | 35 | 14.4 | 15 | 15.6 | 0.1 | 2.2 |
| 7805T | pos. | TO-220 | 35 | 4.8 | 5 | 5.2 | 1 | 2.5 |
| 7808T | pos. | TO-220 | 35 | 7.7 | 8 | 8.3 | 1 | 2.5 |
| 7812T | pos. | TO-220 | 35 | 11.5 | 12 | 12.5 | 1 | 2.5 |
| 7815T | pos. | TO-220 | 35 | 14.4 | 15 | 15.6 | 1 | 2.5 |
| 7805K | pos. | TO-3 | 35 | 4.8 | 5 | 5.2 | 1 | 2 |
| 7812K | pos. | TO-3 | 35 | 11.5 | 12 | 12.5 | 1 | 2 |
| 7815K | pos. | TO-3 | 35 | 14.4 | 15 | 15.6 | 1 | 2 |
| 7905T | neg. | TO-220 | 35 | -4.8 | -5 | -5.2 | 1 | 2.3 |
| 7912T | neg. | TO-220 | 35 | -11.5 | -12 | -12.5 | 1 | 2.3 |
| 7915T | neg. | TO-220 | 35 | -14.4 | -15 | -15.6 | 1 | 2.3 |
| 7905K | neg. | TO-3 | 35 | -4.8 | -5 | -5.2 | 1 | 2.3 |
| LM317T | pos. | TO-220 | 40 | adj. 1.2 to 37 |  |  | 1.5 | 3 |
| LM317K | pos. | TO-3 | 40 | adj. 1.2 to 37 |  |  | 1.5 | 3 |
| LM350T | pos. | TO-220 | 35 | adj. 1.2 to 33 |  |  | 3 | 3 |
| LM350K | pos. | TO-3 | 35 | adj. 1.2 to 33 |  |  | 3 | 3 |
| LM337T | neg. | TO-220 | 40 | adj. -1.2 to -37 |  |  | 1.5 | 3 |
| LM-2940CT-5 | pos. | TO-220 | 26 | <6.25 | 5 | 5.25 | 1 | <1 |
| LM-2940T-8 | pos. | TO-220 | 26 | <9.4 | 8 | 8.4 | 1 | <1 |
| LM-2940T-10 | pos. | TO-220 | 26 | <11.5 | 10 | 10.5 | 1 | <1 |
| LM-2940CT-12 | pos. | TO-220 | 26 | <13.6 | 12 | 12.6 | 1 | <1 |
| LM-2941CT | pos. | TO-220 | 45 | adj. 5 to 20 |  |  | 1 | <1 |

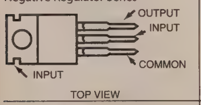
**TO-220 Package**
78XX, LM340, LM2940
Positive Regulator Series


OUTPUT
COMMON
INPUT
COMMON
TOP VIEW

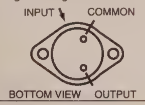
**TO-3 Package**
78XX, LM340
Positive Regulator Series


COMMON
INPUT
BOTTOM VIEW
OUTPUT

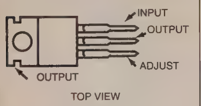
**TO-220 Package** 79XX, LM320
Negative Regulator Series


OUTPUT
INPUT
COMMON
INPUT
TOP VIEW

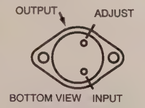
**TO-3 Package** 7905, LM320
Negative Regulator Series


INPUT
COMMON
BOTTOM VIEW
OUTPUT

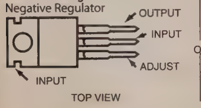
**TO-220 Package** LM317, LM350
Positive Regulator


INPUT
OUTPUT
ADJUST
OUTPUT
TOP VIEW

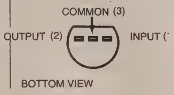
**TO-3 Package**
LM317, LM350


OUTPUT
ADJUST
BOTTOM VIEW
INPUT

**TO-220 Package** LM337
Negative Regulator


OUTPUT
INPUT
ADJUST
INPUT
TOP VIEW

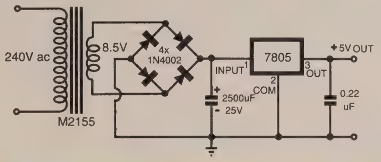
**TO-92 Package** 78LXX
Positive Regulator Series


COMMON (3)
OUTPUT (2)
INPUT (
BOTTOM VIEW

# TYPICAL POWER SUPPLY

**Output: 5V @ 1A**

The same basic circuit can be used with other regulators of different voltages, only the input ac voltage has to be changed to accommodate the requirement of the regulator, e.g. If an output of 12 Volt was the requirement, a 7812 IC could be used with an ac input voltage of 15 Volts.

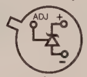

240V ac
8.5V
4x
1N4002
M2155
7805
INPUT 1
2
COM
3
OUT
+5V OUT
+
2500uF
– 25V
0.22
uF

# LM335 PRECISION TEMPERATURE SENSOR

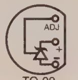
The LM335 operates as a two terminal zener having a breakdown voltage directly proportional
to absolute temperature (10mV per degree Kelvin).

An adjustment terminal is provided, and maximum accuracy is realised when this is used to set the output voltage to 2.982 Volts @ 25°C.

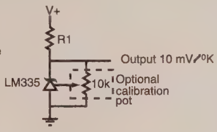
|  |  |
|---|---|
| Max. Rev. Current | 15mA |
| Continuous operating temp. | -40°C to 100°C |
| Operating output Voltage (Tc = 25°C, I = 1mA) typ | 2.98V |
| Max. Uncalibrated Temp. error (Tc = 25°C, I = 1mA) | 6°C |
| Output Voltage Tempco. | 10mV/°C |
| Dynamic Impedance | 0.6 Ohms |
| Non-Linearity (I = 1mA) | 1.5°C |



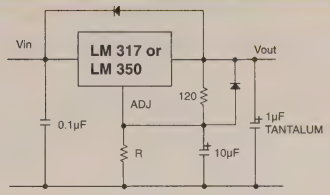
TO-46
Metal can package



TO-92
Plastic package


V+
R1
Output 10 mV/°K
LM335
10k
Optional
calibration
pot

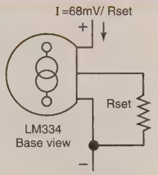
# LM317 OR LM350 SERIES


Vin
LM 317 or
LM 350
Vout
ADJ
120
0.1µF
R
10µF
1µF
TANTALUM

1. Choose Resistor R as follows: R = (96 x Vout) – 120
Where R is in ohms and Vout is in volts.
2. Vin should be at least 2.5 Volts greater than Vout.
3. Capacitor voltage ratings must be chosen appropriately.
4. The protection diodes shown will be necessary if the input or output of the regulator is shorted to ground. 1 Amp types should be adequate.

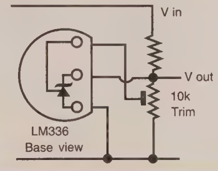
# LM334 ADJUSTABLE CURRENT SOURCE

|  |  |
|---|---|
| Operating Voltage | 1-30 |
| Max Power Dissipation | 200mW |
| Voltage Sensitivity | 0.1%/V |
| Temperature Sensitivity | +0.33%/°C |


I =68mV/ Rset
+
Rset
LM334
Base view
–

# LM336 REFERENCE DIODES

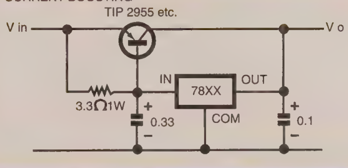
|  | LM336-2.5 | LM336-5.0 |
|---|---|---|
| Max Fwd Current (mA) | 10 | 10 |
| Untrimmed Ref Voltage | 2.44-2.54 | 4.9-5.1 |
| Dynamic Impedance (Ohms) | 1 | 2 |
| Temp Stability (0-70°C) | 20ppm | 20ppm |


V in
V out
10k
Trim
LM336
Base view

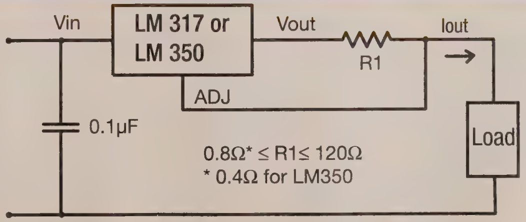
# INCREASING THE OUTPUT CURRENT OF THE REGULATOR

By adding a PNP power transistor to a positive regulator, the output current can be increased above the normal rating of the regulator itself. The circuit shown below can be expected to deliver in excess of 4A with the pass transistor mounted on a heatsink. The same conditions can also be implemented with a negative regulator, the difference being the polarities of components, the pass transistor in this case would be an NPN type such as a 2N3055.

CURRENT BOOSTING


TIP 2955 etc.
V in
V o
IN
78XX
OUT
3.3Ω1W
+
0.33
–
COM
+
0.1
–

# USING THE LM317 OR LM350 AS A CURRENT REGULATOR

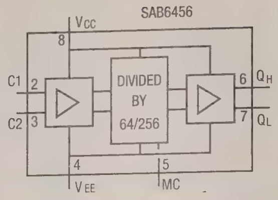

Vin
LM 317 or
LM 350
Vout
R1
Iout
ADJ
0.1µF
Load
0.8Ω* ≤ R1≤ 120Ω
* 0.4Ω for LM350

Vref typically 1.25V  Iout = Vref/R1

## Z 9125 SAB6456 1GHZ PRESCALER IC

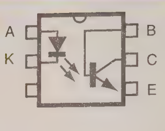
**Specifications**

| | |
|---|---|
| Supply Voltage | 4.5-5.5 Volts |
| Current Consumption | 21mA (typ) |
| Max. Input Signal | 300mV rms min |
| Input Sensitivity | 10mV rms max |
| Input Frequency Range | 70-1000MHz |
| Output Voltage | 1 Volt (p-p) |
| Divide ratio | 64 with MC pin open circuit |
| | 256 with MC pin connected to ground |

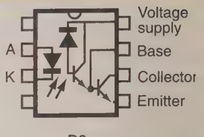

SAB6456
Vcc
8
C1
2
C2
3
DIVIDED
BY
64/256
6
QH
7
QL
4
VEE
5
MC

## OPTO COUPLERS

| TYPE | LED<br>Vr (V) | If (mA) | Vf @ V | If (mA) | TRANSISTOR<br>Vce (V) | Vcb (V) | Vces @ (V) | Ic (mA) | Hfe | DEVICE<br>Ic/If | Viso (kV) | Ptot (mW) | CASE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| H11A1 | 3 | 60 | 1.15 | 10 | 30 | 70 | 0.1 | 0.5 | 500 | 2.5 | 7.5 | 250 | D6 |
| 4N25 | 3 | 80 | 1.5 | 10 | 30 | 70 | 0.5 | 2 | 325 | 0.5 | 2.5 | 250 | D6 |
| 4N28 | 3 | 80 | 1.5 | 10 | 30 | – | 0.5 | 2 | 325 | 0.2 | 0.5 | 250 | D6 |
| SFH601 | 6 | 60 | 1.6 | 60 | 70 | – | 0.4 | 2.5 | – | >0.4 | 5.3 | 250 | D6 |
| 6N138 | 5 | 20 | 1.7 | 1.6 | 7 | – | 0.06 | 6.4 | – | >3 | 3 | 135 | D8 |



D6


A
K
Voltage supply
Base
Collector
Emitter

D8

## Z 4516 3021 OPTO-COUPLED TRIAC DRIVER

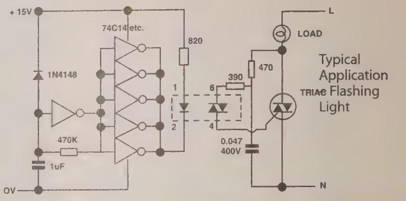
This opto-coupled triac driver consists of a gallium-arsenide infrared LED optically coupled to a silicon bilateral switch (SBS) in a 6 pin DIL pack. They are designed for general applications requiring isolated triac triggering such as interfacing TTL to mains control equipment. The device features low trigger current, high isolation and blocking voltages, and low cost.

**Specifications:**

| | |
|---|---|
| Package Dissipation: | 330mW |
| Surge Isolation Voltage: | 7500 Volt |
| SBS Dissipation: | 300mW |
| SBS Blocking Voltage (Pk): | 400 Volt |
| SBS dv/dt: | 10V/uS (typ.) |

**Specifications:**

| | |
|---|---|
| SBS Current (Pk): | 100mA |
| SBS On Voltage (max): | 3 Volt |
| LED Trigger Current (max): | 15mA |
| LED Fsw Voltage (max): | 1.5 Volt |
| LED Current (max): | 50mA |

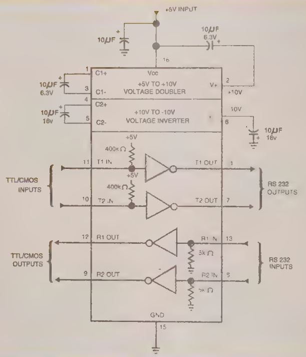

+ 15V
74C14 etc.
820
1N4148
470K
1uF
OV
1
6
2
4
390
470
0.047
400V
LOAD
L
N
Typical Application
TRIAC Flashing Light

## Z 5369 CMOS SINGLE-RAIL RS-232 INTERFACE

The Z 5369 provides 2 RS-232 inputs and 2 outputs. The device features on-chip dc-dc converters to generate the bipolar RS-232 supplies from a single 5 Volt rail.

**Specifications:**

| | | |
|---|---|---|
| Supply Voltage | Vdd | 4.5 to 5.5 Volt |
| Supply Current | idd | 5mA (typ) |
| Driver Input Voltage | Vil | 0.8V (max) |
| | Vih | 2V (min) |
| Driver Input Current | Iil | -200uA (max) |
| Driver Output Swing | Voh | 5 Volt (min @ R1=3K) |
| | Vol | -5 Volt (min @ R1=3K) |
| Driver Output Resistance | Ro | 300 Ohms (min) |
| Output Short Circuit Current | Isc | 10mA (typ) |
| Receiver Input Threshold | Vih | 1.7V (typ) |
| | Vil | 1.2V (typ) |
| Receiver Input Resistance | Rin | 3K to 5K |
| Recommended dc-dc Capacitors | | 1 to 47 uF |


+5V INPUT
10µF
10µF 6.3V
16
C1+
Vcc
+5V TO +10V VOLTAGE DOUBLER
V+
2
+10V
1
3
C1-
10µF 6.3V
4
C2+
5
C2-
10µF 16v
+10V TO -10V VOLTAGE INVERTER
10V
6
10µF 16v
+5V
400k Ω
11
T1 IN
T1 OUT
1
400k Ω
10
T2 IN
T2 OUT
7
TTL/CMOS INPUTS
RS 232 OUTPUTS
12
R1 OUT
R1 IN
13
5k Ω
9
R2 OUT
R2 IN
5
TTL/CMOS OUTPUTS
RS 232 INPUTS
GND
15

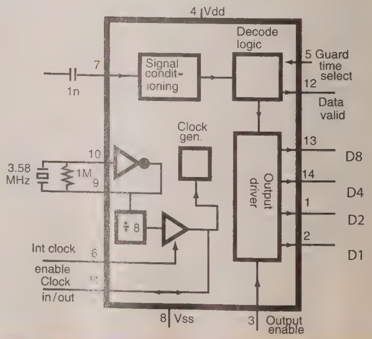
## Z 5460 145436 DTMF DECODER

**Specifications**

| | | |
|---|---|---|
| Supply Voltage | Vdd | 4.5-5 Volt |
| Supply Current | Idd | 15mA (max) |
| Input Impedance | Rin | 90k ohms (min) |
| Input Signal Level | | 14m Volt-615m |
| Volt | | |
| Detection Bandwidth | | 5% (typ) |
| Output Current | Ioh | 800uA |
| (Data/Data Valid Pins) | Iol | 1mA |
| Tone On Time (for detection) | | 40mS (min) |
| Tone Off Time (for detection) | | 40mS (min) |
| Detection Time | (Pin5=Vss) | 22-40ms |
| | (Pin5=Vdd) | 32-50ms |
| Release Time | (Pin5=Vss) | 28-40ms |
| | (Pin5=Vdd) | 18-30ms |

OUTPUT CODES

| Digit | D8 | D4 | D2 | D1 |
|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 1 |
| 2 | 0 | 0 | 1 | 0 |
| 3 | 0 | 0 | 1 | 1 |
| 4 | 0 | 1 | 0 | 0 |
| 5 | 0 | 1 | 0 | 1 |
| 6 | 0 | 1 | 1 | 0 |
| 7 | 0 | 1 | 1 | 1 |
| 8 | 1 | 0 | 0 | 0 |
| 9 | 1 | 0 | 0 | 1 |
| 0 | 1 | 0 | 1 | 0 |
| * | 1 | 0 | 1 | 1 |
| # | 1 | 1 | 0 | 0 |
| A | 1 | 1 | 0 | 1 |
| B | 1 | 1 | 1 | 0 |
| C | 1 | 1 | 1 | 1 |
| D | 0 | 0 | 0 | 0 |


4 Vdd
Decode logic
5 Guard time select
12
Data valid
7
Signal condit-ioning
1n
Clock gen.
10
3.58 MHz
1M
9
÷ 8
Output driver
13
D8
14
D4
1
D2
2
D1
Int clock enable
6
Clock in/out
8 Vss
3 Output enable

Notes:

1. **Guard time** selects detect and release times.
2. **Data valid** output signals a valid detection.

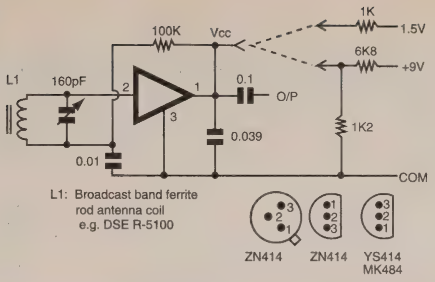
## Z 6525 MK484 TRF RADIO IC

This device is a 10-transistor TRF circuit containing an RF amplifier, active detector and AGC housed in a space saving 3 pin package. The circuit features high quality audio, low current consumption, no alignment and complete stability.

A typical application is shown with two alternative power source possibilities.

**Specifications**

| | |
|---|---|
| Supply Voltage | 1.1 to 1.8V |
| Supply Current | 0.3 to 0.5mA |
| Frequency Range | 0.15 to 3MHz |
| Input Resistance | 4M Ohms |
| THD | 4% |
| Power Gain | 72dB |
| AF Output | 30mV RMS<br>(Vin=10mV m=30%) |



L1: Broadcast band ferrite rod antenna coil e.g. DSE R-5100

## Z 6011 UPC 1688G WIDE-BAND AMPLIFIER IC

The NEC device uPC1688G is a monolithic low-noise high-gain wideband IC amplifier in a 4-pin surface mount package.

This device features a flat gain over a wide bandwidth covering HF to UHF, and typical applications include mast-head and RF preamplifiers in 50 or 75 Ohm systems.

**ELECTRICAL CHARACTERISTICS** (Ta=25°C, Vcc=5V, $Z_S=Z_L$=50 ohms)

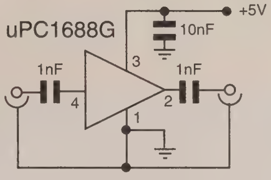
| CHARACTERISTIC | SYMBOL | MIN. | AV. | MAX. | UNIT | TEST CONDITION |
|---|---|---|---|---|---|---|
| Circuit Current | ICC | 14 | 19 | 24 | mA | No input signal |
| Power Gain | GV | 18 | 21 | 23 | dB | f=0.5GHz, (GV=S21) |
| Noise Figure | NF | | 4.0 | 5.5 | dB | f=0.5GHz |
| Upper Limit Freq. | fU | 0.9 | 1.1 | | GHz | 3dB down below 0.1GHz gain |
| Isolation | ISL | 23 | 27 | | dB | f=0.5GHz |
| Input Return Loss | RLin | 10 | 13 | | dB | f=0.5GHz, RLin=S11 |
| Output Return Loss | RLout | 10 | 13 | | dB | f=0.5GHz, RLout=S22 |
| Maximum Output Level | PO | 2 | 4 | | dBm | f=0.5GHz, Pin=-5dBm |

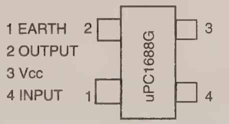
**Specifications**

| | |
|---|---|
| Supply Voltage | 5V |
| Frequency Response | 1GHz typ. |
| Power Gain | 21dB typ. @ 0.5GHz |
| Gain Flatness | +/- 1dB typ. 0.1 to 0.7GHz |

**Absolute Maximum Ratings** (Ta=25∞C)

| | |
|---|---|
| Supply voltage | 6V |
| Input Power | +10dB |
| Total Power Dissipation | 200mW |
| Operating Temp Range | -40 to +85∞C |





## Z 2620 UGN3503 LINEAR HALL SENSOR

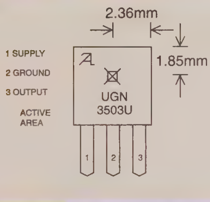
Linear Hall effect sensors can be used as contactless switches, linear potentiometers, position sensors and current sensors. Unlike optical sensors, the Hall sensors are generally immune to dirt, and unlike inductive coil sensors, these devices can detect both changing and static magnetic fields.

The output voltage of the sensor in the absence of a magnetic field is nominally one half the supply voltage. A south magnetic pole presented to the branded face of the sensor will cause the output voltage to increase. A north magnetic pole will cause the output voltage to decrease.

**Specifications**

| | |
|---|---|
| Operating Voltage | 4.5-6V |
| Supply Current | 14 mA max. |
| Quiescent O/P Voltage (B=0) | 2.5V typ. |
| Sensitivity | 13V/Tesla. |

| | |
|---|---|
| Bandwidth (-3dB) | 23kHz typ. |
| Broadband Noise O/P (10Hz-10kHz) | 90uV typ. |
| Output Impedance | 50 Ohms typ. |
| Operating temperature Range | -20∞C to +85∞C |



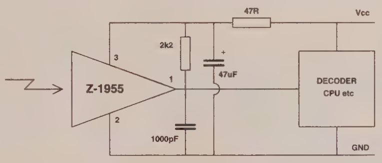
## Z 1955 INFRA RED RECEIVER DEVICE

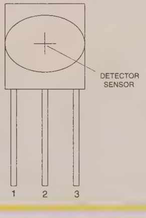
The Z 1955 device is comprised of an IR receiver diode, amplifier, limiter, bandpass filter, demodulator and comparator, all in the one 3 terminal package. It provides a compact and inexpensive alternative to traditional discrete IR receiver front ends.

The output of the device is normally HIGH, and goes LOW in the presence of infrared light amplitude modulated by a 38kHz sub-carrier.

The output is electronically equivalent to a common-emitter transisitor with a 22k pull-up resistor. This output can drive a CMOS input directly, and an external 2k2 pull-up resistor can be added for driving TTL.

| **Specifications** | **Min.** | **Typ.** | **Max.** |
|---|---|---|---|
| Operating Voltage | 4.7V | 5.0V | 5.3V |
| Quiescent current (Iout=0mA) | 2.8mA | 4.5mA | |
| Output Voltage High (Isource=0mA) | 4.8V | | |
| Output Voltage Low (Isink=2mA) | 0.45V | 0.6V | |
| Sub-carrier Filter Centre | 38kHz | | |
| Reception Distance on-axis | 5m | | |
| Reception Distance +/-30∞ horiz. | 3m | | |
| Reception Distance +/-15∞ vert. | 3m | | |

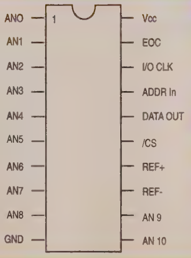




## Z 6830 TLC542C 11-INPUT SERIAL A-D CONVERTER

The Z 6830 is a serial 8-bit successive approximation analogue to digital converter. This chip is used for the A-D component of the K 2805 Parallel Port Interface Kit.

The TLC542C is operated via a 5-wire interface from a microprocessor or parallel I/O port. 11 analogue inputs (AN0-AN10) are available for use, a further analogue channel (AN11) is internally connected to half the supply rail, and can be used as a self-test or battery check. Once the 4-bit address has been received the A-D conversion is initiated. This conversion is internally clocked and completed in 20uS. The voltage reference pins Ref+ and Ref- can be connected directly to Vcc and Ground respectively, to directly suit a 0V to +5V range at the analogue inputs. The chip is addressed via the 3 input pins, /CS (chip select), IO-CLK, and ADDR IN. This operation takes 8 clock cycles; For the first 4 clock cycles, 4 address bits are written (MSB first) to ADDR IN to specify the analogue input for the next conversion. During these 8 clock cycles the 8-bit result from the previous A-D conversion is available in serial form at the DATA OUT pin (MSB first). The EOC (end of conversion) pin signals when the A-D conversion is complete.



**SPECIFICATIONS**

| | |
|---|---|
| Conversion Time | 20uS typ. |
| Power Dissipation | 10mW typ. |
| Unadjusted Error<br>(for differential Vref > 4.75V) | +/-0.5 LSB max. |

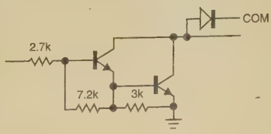
| | **MIN.** | **NOM.** | **MAX.** |
|---|---|---|---|
| Supply Voltage | 4.75 | 5.0 | 5.5V |
| Analogue Input Voltage | 0 | | Vcc |
| Diff. Reference Voltage | 1 | Vcc | Vcc+0.2V |
| Clock frequency | 0 | 1.1 MHz | |

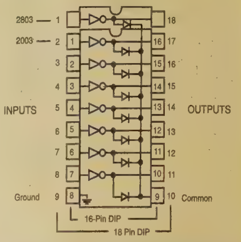
# DARLINGTON DRIVER ICs

These devices comprise either seven or eight Darlington connected transistors in a common emitter, open collector arrangement. Each Darlington pair is provided with a clamping diode, and series input resistor to allow operation directly from TTL/CMOS operating at 5 volts. Typical applications include display, solenoid and relay drivers.

**Specifications**

| **Device** | **Z-5380 (2003)** | **Z-6282 (2803)** |
|---|---|---|
| Number of drivers in package | 7 | 8 |
| Number of pins | 16 | 18 |
| Collector Emitter Voltage (max) | 50V | 50V |
| Collector Current (max) | 350mA | 500mA |
| Vce (sat) (Ic = 350mA, Ib = 0.5mA) | 1.6V | 1.6V |
| Input Voltage (Vce = 2V, Ic = 350mA) | 3.0V | 3.0V |
| Clamp Diode Vf (If = 350mA) | 2.0V | 2.0V |
| Max. Power Dissipation (25°C) | 1.8W | 1.8W |
| Representative Devices | ULN2003<br>DS2003<br>uA9667 | ULN2803 |


2.7k
7.2k
3k
COM


2803 — 1
2003 — 2
INPUTS
OUTPUTS
Ground
Common
1 2 3 4 5 6 7 8 9
18 17 16 15 14 13 12 11 10
16-Pin DIP
18 Pin DIP

# USING POWER MOSFETS

MOSFETs have undergone considerable development in the last decade and offer several advantages over common bipolar transistors, particularly in switching applications.

The most common power MOSFETs are N-channel enhancement mode devices. These are not unlike NPN bipolar transistors in that the Source is usually the most negative terminal and the Drain is the most positive. No current flows through the Drain-Source channel when there is zero volts between the Gate and Source but the channel conducts when a high enough positive voltage, typically 2 to 4 Volts, is applied between the Gate and the Source. At higher Gate to Source voltages of around 10 Volts the Drain-Source channel is fully conducting and is equivalent to a very low value resistor – typically 0.1 Ohms.

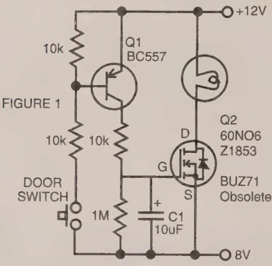
Although MOSFETs are fairly rugged, the Gate is very susceptible to electrostatic damage and normal antistatic techniques should be used when handling and installing MOSFETs.

In the circuits below, figure 1 shows a car interior light extender. When one of the car doors is opened, its door switch closes and draws base current through Q1. Q1 conducts, charging C1 and provides sufficient gate voltage for Q2 to switch on. When the door switch opens, Q1 is turned off and C1 discharges via the 1M resistor. After about 10 seconds the voltage on C1 falls below the FET's Gate threshold voltage and Q2 switches off. As the MOSFET switches off slowly, it dissipates several watts of heat for a short period but should not need a heatsink for normal, infrequent switching.

A novel reverse-polarity protection circuit is shown in figure 2. If the supply is connected correctly, the FET's inherent Drain-Source diode conducts, allowing almost the full supply voltage to appear across the load. The gate is now biased on, causing the Drain-Source channel to fully conduct and short-circuit the diode. If the supply is reversed the diode will not conduct and the FET, having no Gate bias, will block current flow. The major advantage of this circuit over a simple series diode is the much lower voltage drop lost across the FET.

Figure 3 shows a high efficiency dimmer for 12 Volt filament lamps. The 555 timer IC is configured as a variable duty cycle, astable oscillator running at around 300Hz. No heatsink should be necessary for loads of up to 40W and only a small heatsink (30° C/W) is needed for 60W loads.

FIGURE 1


+12V
10k
Q1
BC557
10k
10k
Q2
60NO6
Z1853
D
G
S
BUZ71
Obsolete
DOOR
SWITCH
1M
+
C1
10uF
8V

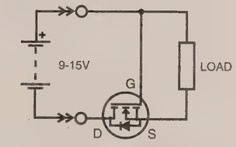

+
9-15V
LOAD
G
D
S

FIGURE 2

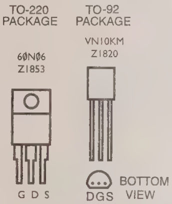
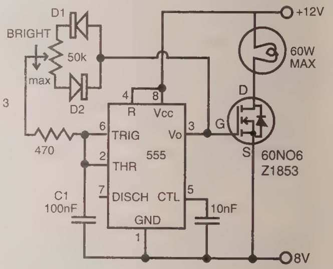

TO-220
PACKAGE
TO-92
PACKAGE
60N06
Z1853
VN10KM
Z1820
G D S
DGS
BOTTOM
VIEW

FIGURE 3


+12V
D1
BRIGHT
50k
max
D2
60W
MAX
D
G
S
60NO6
Z1853
4
8
R
Vcc
6
TRIG
Vo
3
470
2
THR
555
C1
100nF
7
DISCH
CTL
5
10nF
GND
1
8V

# P-7810 KEYPAD

## P-7810 NUMERIC MATRIX KEYPAD

The P-7810 is a 12-button keypad, made up in the standard three-column four-row XY matrix, and featuring square white buttons with black lettering. The buttons operate SPST switches of conductive rubber pads and include a click effect for tactile feedback.

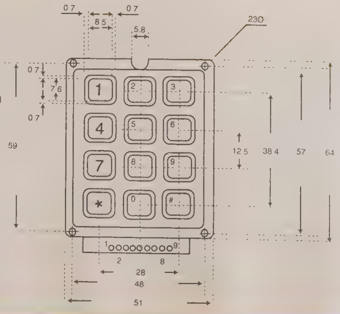
The interface is a simple row/column connection across seven pins. Ideal for use with microprocessors, as alarm key-code entry panels and for general hobbyist keypad applications.

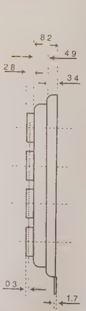
**Specifications**

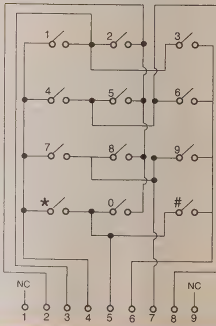
Contact rating: 20mA, 24VDC maximum
Contact resistance: 200 ohms maximum
Actuating force: 100 +/-30 grams
Stroke: 1.5 +/-0.5mm
Contact bounce: 5ms maximum
Contact life: 1 million cycles per key

## OUTPUT PIN ARRANGEMENT

| **Output Pin Number** | **Matrix** |
|---|---|
| 1 | No connection |
| 2 | Column 2 |
| 3 | Row 1 |
| 4 | Column 1 |
| 5 | Row 4 |
| 6 | Column 3 |
| 7 | Row 3 |
| 8 | Row 2 |
| 9 | No connection |


0.7
8.5
0.7
5.8
230
0.7
7.6
0.7
59
12.5
38.4
57
64
1
2
3
4
5
6
7
8
9
*
0
#
1
9
2
8
28
48
51


8.2
4.9
2.8
3.4
0.3
1.7


1
2
3
4
5
6
7
8
9
*
0
#
NC
NC
1 2 3 4 5 6 7 8 9

## Q 2220 LCD PANEL METER

The Q 2220 panel meter is a complete LCD voltmeter module. A 3 1/2 digit Liquid Crystal Display is mounted onto a PCB which includes all the necessary LCD drive requirements. The Q 2220 has minimal power supply needs. With the inclusion of appropriate scaling resistors, it can be configured as a voltmeter with a range of either 200mV, 2V, 20V, or as an ammeter with a range of either 200uA, 2mA, 20mA, 200mA or 2A.
A complete data sheet is supplied with each unit.

**Specifications**

| | |
|---|---|
| Display count | 2000 count (3 1/2 digits) |
| Display type | Liquid Crystal Display |
| Maximum input voltage | 199.9mV |
| Polarity indication | Automatic |
| Over-range indication | "1" shown on display |
| Reading time | 2-3 readings per second |
| Input impedance | > 100 Mohm |
| Tempco | +100ppm/°C |
| Accuracy | +/- (0.5% + 1 digit) |
| Supply voltage | 7 to 11 Volts DC |
| Supply current | 1mA |

## Q 2230 LED PANEL METER

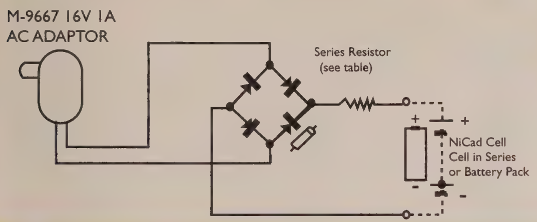
The Q 2230 is a self-contained 3 1/2 digit red-LED panel meter, supplied with an easy-to-fit black panel surround. Based around the 7107 A/D converter IC, it is powered from a +5V supply, and as supplied is ready for immediate use as a 0-200mV voltmeter. By adding the appropriate scaling resistors, the full scale reading can easily be set to 2 Volts or 20 Volts.
A complete data sheet is supplied with each unit.

**Specifications**

| | |
|---|---|
| Display count | 2000 count (3 1/2 digits) |
| Display type | red LED |
| Maximum input voltage | 199.9mV |
| Polarity indication | Automatic |
| Over-range indication | "1" shown on display |
| Reading time | 2.5 readings per second |
| Input impedance | 10 Mohm |
| Tempco | +100ppm/°C |
| Accuracy | +/- (0.1% + 1 digit) |
| Supply voltage | +5 Volts DC |
| Supply current | <60mA (approx 2.5mA per segment) |

## A SIMPLE NICAD CHARGER

Circuit diagram for a simple constant current charger, the table below gives a guide to the value of the series resistor. The actual value of the correct charging current for the nicad cell is usually marked on the body. The resistor values in the table chosen are for a 14 hour charge period.



### TYPICAL APPLICATIONS

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | 4 Cells | 6 Cells | 8 Cells | 10 Cells |
| Type of Cell | | 5V | 7.5V | 10V | 12.5V | |
| S3312 | 700mAH | AA | 150/1W | 120/1W | 100/1W | 68/1W |
| S3301 | 1.2AH | C | 82/5W | 68/5W | 47/5W | 33/5W |
| S3311 | 2AH | C | 47/5W | 39/5W | 27/5W | 22/5W |
| S3303 | 1.2AH | D | 82/5W | 68/5W | 57/5W | 33/5W |
| S3410 | 120mA 9V Transistor Battery (x1) 680/0.25W | | | | | |

The figures in the four columns indicate the value of the series resistor (in Ohms), and its power rating (in Watts) for the particular cells. These values are intended as a guide, or starting point, but should result in charge current within 10% of the desired target values. The actual value best suited to the cells in use can be determined by inserting a current meter in series with charged cells, while charging, and substituting other resistor values. For most applications, the values shown in the table should be satisfactory.

## R 1802 METAL OXIDE VARISTOR

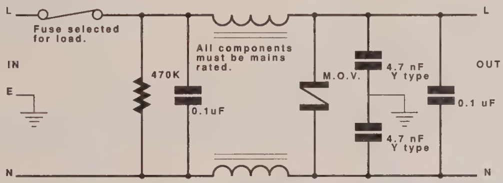
Metal Oxide Varistors are voltage dependent symmetrical resistors intended to protect equipment from transient voltages resulting from lightning strikes, load dumps etc. When subjected to a high-energy voltage transient, the device's impedance changes from a high standby value to a very low conducting value. The use of these devices not only significantly reduces the chance of electrical damage but also improves equipment reliability.

**Ratings and Characteristics**

| | |
|---|---|
| Maximum continuous voltage | |
| sine wave RMS | 275V |
| DC | 350V |
| Maximum Energy (10/100uS pulse) | 75J |
| Maximum dissipation | 600mW |
| Peak Current (single 8/20uS pulse) | 4500A |
| Minimum Varistor Voltage (1mA d.c. test) | 387V |
| Maximum Clamping Voltage (50A, 8/20uS) | 710V |
| Typical Capacitance | 460pF |

A circuit showing a typical application of a device in a line filter is shown.

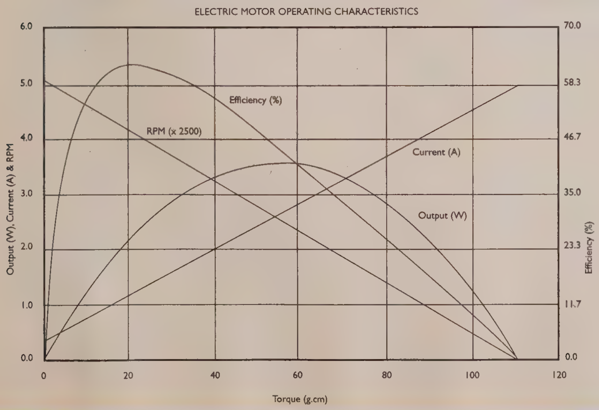
Note that because a varistor may explode if subjected to energy levels in excess of maximum ratings, protective fusing and/or shielding is recommended to guard against physical damage.



*Note: An 8/20uS pulse refers to a pulse which rises from 10% to 90% in 8uS and falls from 100% to 50% in 20uS. This pulse is considered to be representative of lightning strikes.*

## PERMANENT MAGNET DC MOTORS

Modern permanent magnet DC motors are small, relatively efficient and have a high power to weight ratio. They also have the advantage that they can generate a DC voltage proportional to speed when the rotor is turned. They have a linear relationship between speed, applied voltage, current and torque, making their performance easier to predict. Characteristics are shown in the following formulae and illustrated in the graph which is of a typical motor.



$I = (V - V_G)/R$
$N = N_o . (1 - T/T_s)$
$I = I_o + T . (I_s - I_o)/T_s$
$P_I = V . I$
$P_O = N . T/97400$
$P_{OM} = (N_o . T_s/97400)/4$
$T_{PM} = T_s/2$
$\eta = 100 . P_O/P_{in}$
$T_{\eta M} = T_S . I_o^{1/2}(I_s^{1/2} - I_o^{1/2})$
$I_{\eta M} = (I_o . I_s)^{1/2}$

$I$ = supply current (Amps)
$I_o$ = no-load current (Amps)
$I_s$ = stall current (Amps)
$V$ = supply voltage (Volts)
$V_G$ = back-emf generated by rotor (Volts)
$R$ = rotor resistance (Ohms)
$N$ = rotor speed (rpm)
$N_o$ = no-load speed (rpm)
$T$ = torque (g.cm)
$T_s$ = stall torque (g.cm)
$T_{PM}$ = torque at Pom (g.cm)
$T_{\eta M}$ = torque at maximum efficiency
$P_I$ = electrical input power (Watts)
$P_O$ = mechanical power output (Watts)
$P_{OM}$ = maximum power output (Watts)
$\eta$ = efficiency (%)
$I_{\eta M}$ = current at maximum $\eta$

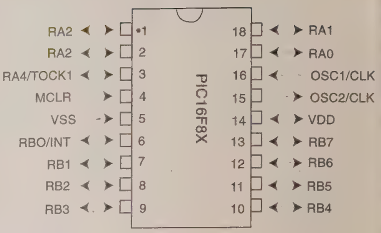
# COMMON MICROPROCESSORS PIC 16F8X

| PIN NAME | DIP NO. | I/O/P TYPE | BUFFER TYPE | DESCRIPTION |
|---|---|---|---|---|
| OSC1/ CLKIN | 16 | I | ST/CMOS(3) | Oscillator crystal input/external clock source input. |
| OSC2/ CLKOUT | 15 |  | O | Oscillator crystal output. Connects to crystal or resonator in crystal oscillator mode. In RC mode, OSC2 pin outputs CLKOUT which has 1/4 the frequency of OSC1, and denotes the instruction cycle rate. |
| MCLR | 4 | I/P | ST | Master clear (reset) input or programming voltage input. This pin is an active low reset to the device. PORTA is a bi-directional I/O port. |
| RA0 | 17 | I/O | TTL |  |
| RA1 | 18 | I/O | TTL |  |
| RA2 | 1 | I/O | TTL |  |
| RA3 | 2 | I/O | TTL |  |
| RA4/T0CKI | 3 | I/O | ST | Can also be selected to be the clock input to the TMR0 timer/counter. Output is open drain type. |

| PIN NAME | DIP NO. | I/O/P TYPE | BUFFER TYPE | DESCRIPTION |
|---|---|---|---|---|
|  |  |  |  | PORTB is a bi-directional I/O port. PORTB can be software programmed for internal weak pull-up on all inputs. |
| RB0/ INT | 6 | I/O | TTL/ST(1) | RB0/INT can also be selected as an external interrupt pin. |
| RB1 | 7 | I/O | TTL |  |
| RB2 | 8 | I/O | TTL |  |
| RB3 | 9 | I/O | TTL |  |
| RB4 | 10 | I/O | TTL | Interrupt on change pin. |
| RB5 | 11 | I/O | TTL | Interrupt on change pin. |
| RB6 | 12 | I/O | TTL/ST(2) | Interrupt on change pin.<br>Serial programming clock. |
| RB7 | 13 | I/O | TTL/ST(2) | Interrupt on change pin.<br>Serial programming data. |
| VSS | 5 | P |  | Ground reference for logic and I/O pins. |
| VDD | 14 | P |  | Positive supply for logic and I/O pins. |

Legend: I = input     O = output     I/O = input/output
P = power - = not used     TTL = TTL input     ST = Schmitt Trigger input

Note:
1: This buffer is a Schmitt Trigger input when configured as the external interrupt.
2: This buffer is a Schmitt Trigger input when used in serial programming mode.
3: This buffer is a Schmitt Trigger input when configured in RC oscillator mode and a CMOS input otherwise.


RA2
RA2
RA4/TOCK1
MCLR
VSS
RBO/INT
RB1
RB2
RB3
•1
2
3
4
5
6
7
8
9
PIC16F8X
18
17
16
15
14
13
12
11
10
RA1
RA0
OSC1/CLK
OSC2/CLK
VDD
RB7
RB6
RB5
RB4

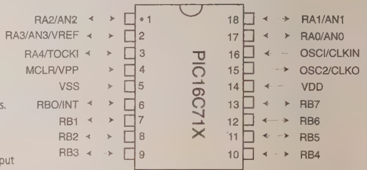
# PIC 16C71X

| PIN NAME | DIP NO. | I/O/P TYPE | BUFFER TYPE | DESCRIPTION |
|---|---|---|---|---|
| OSC1/ | 16 | I | ST/CMOS(3) | Oscillator crystal input/external CLKIN clock source input. |
| OSC2/ | 15 | O |  | Oscillator crystal output. Connects CLKOUT to crystal or resonator in crystal oscillator mode. In RC mode, OSC2 pin outputs CLKOUT which has 1/4 the frequency of OSC1, and denotes the instruction cycle rate. |
| MCLR/VPP | 4 | I/P | ST | Master clear (reset) input or programming voltage input. This pin is an active low reset to the device. PORTA is a bi-directional I/O port. |
| RA0/AN0 | 17 | I/O | TTL | RA0 can also be analog input0. |
| RA1/AN1 | 18 | I/O | TTL | RA1 can also be analog input1. |
| RA2/AN2 | 1 | I/O | TTL | RA2 can also be analog input2. |
| RA3/AN3/ | 2 | I/O | TTL | RA3 can also be analog input3 or VREF analog reference voltage. |
| RA4/T0CKI | 3 | I/O | ST | RA4 can also be the clock input to the Timer0 module. Output is open drain type. |

| PIN NAME | DIP NO. | I/O/P TYPE | BUFFER TYPE | DESCRIPTION |
|---|---|---|---|---|
|  |  |  |  | PORTB is a bi-directional I/O port. PORTB can be software programmed for internal weak pull-up on all inputs. |
| RB0/INT | 6 | I/O | TTL/ST(1) | RB0 can also be the external interrupt pin. |
| RB1 | 7 | I/O | TTL |  |
| RB2 | 8 | I/O | TTL |  |
| RB3 | 9 | I/O | TTL |  |
| RB4 | 10 | I/O | TTL | Interrupt on change pin. |
| RB5 | 11 | I/O | TTL | Interrupt on change pin. |
| RB6 | 12 | I/O | TTL/ST(2) | Interrupt on change pin.<br>Serial programming clock. |
| RB7 | 13 | I/O | TTL/ST(2) | Interrupt on change pin.<br>Serial programming data. |
| VSS | 5 | P |  | Ground reference for logic and I/O pins. |
| VDD | 14 | P |  | Positive supply for logic and I/O pins. |

Legend: I = input     O = output     I/O = input/output
P = power- = not used     TTL = TTL input     ST = Schmitt Trigger input

Note
1: This buffer is a Schmitt Trigger input when configured as the external interrupt.
2: This buffer is a Schmitt Trigger input when used in serial programming mode.
3: This buffer is a Schmitt Trigger input when configured in RC oscillator mode and a CMOS input otherwise.


RA2/AN2
RA3/AN3/VREF
RA4/TOCKI
MCLR/VPP
VSS
RBO/INT
RB1
RB2
RB3
•1
2
3
4
5
6
7
8
9
PIC16C71X
18
17
16
15
14
13
12
11
10
RA1/AN1
RA0/AN0
OSCI/CLKIN
OSC2/CLKO
VDD
RB7
RB6
RB5
RB4

# ATMEL AT90S8535

## PIN DESCRIPTIONS

**VCC**
Digital supply voltage.

**GND**
Digital ground.

**Port A (PA7..PA0)**
Port A is an 8-bit bi-directional I/O port. Port pins can provide internal pull-up resistors (selected for each bit). The Port A output buffers can sink 20mA and can drive LED displays directly. When pins PA0 to PA7 are used as inputs and are externally pulled low, they will source current if the internal pull-up resistors are activated.

Port A also serves as the analog inputs to the A/D Converter.

The Port A pins are tristated when a reset condition becomes active, even if the clock is not running.

**Port B (PB7..PB0)**
Port B is an 8-bit bi-directional I/O port with internal pull-up resistors. The Port B output buffers can sink 20mA. As inputs, Port B pins that are externally pulled low will source current if the pull-up resistors are activated. Port B also serves the functions of various special features of the AT90S4434/8535.

The Port B pins are tristated when a reset condition becomes active, even if the clock is not running.

**Port C (PC7..PC0)**
Port C is an 8-bit bi-directional I/O port with internal pull-up resistors. The Port C output buffers can sink 20mA. As inputs, Port C pins that are externally pulled low will source current if the pull-up resistors are activated. Two Port C pins can alternatively be used as an oscillator for Timer/Counter2.

The Port C pins are tristated when a reset condition becomes active, even if the clock is not running.

**Port D (PD7..PD0)**
Port D is an 8-bit bi-directional I/O port with internal pull-up resistors. The Port D output buffers can sink 20mA. As inputs, Port D pins that are externally pulled low will source current if the pull-up resistors are activated.

Port D also serves the functions of various special features of the AT90S4434/8535.

The Port D pins are tristated when a reset condition becomes active, even if the clock is not running.

**RESET**
Reset input. An external reset is generated by a low level on the RESET pin. Reset pulses longer than 50ns will generate a reset, even if the clock is not running. Shorter pulses are not guaranteed to generate a reset.

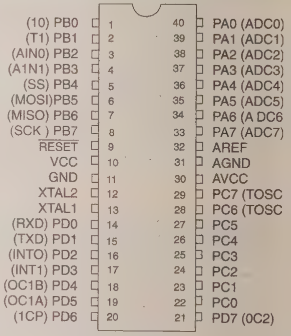
**XTAL1**
Input to the inverting oscillator amplifier and input to the internal clock operating circuit.

**XTAL2**
Output from the inverting oscillator amplifier.

**AVCC**
This is the supply voltage pin for the A/D Converter. It should be externally connected to VCC via a low-pass filter.

**AREF**
This is the analog reference input for the A/D Converter. For ADC operations, a voltage in the range AGND to AVCC must be applied to this pin.

**AGND**
Analog ground. If the board has a separate analog ground plane, this pin should be connected to this ground plane. Otherwise, connect to GND.


(10) PB0
(T1) PB1
(AIN0) PB2
(A1N1) PB3
(SS) PB4
(MOSI)PB5
(MISO) PB6
(SCK ) PB7
RESET
VCC
GND
XTAL2
XTAL1
(RXD) PD0
(TXD) PD1
(INTO) PD2
(INT1) PD3
(OC1B) PD4
(OC1A) PD5
(1CP) PD6
1
2
3
4
5
6
7
8
9
10
11
12
13
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28
27
26
25
24
23
22
21
PA0 (ADC0)
PA1 (ADC1)
PA2 (ADC2)
PA3 (ADC3)
PA4 (ADC4)
PA5 (ADC5)
PA6 (A DC6
PA7 (ADC7)
AREF
AGND
AVCC
PC7 (TOSC
PC6 (TOSC
PC5
PC4
PC3
PC2
PC1
PC0
PD7 (0C2)

# ROTARY ENCODER

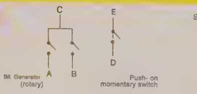
## PIHER C1-11 ROTARY ENCODER

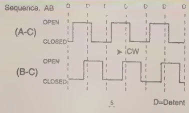
A rotary encoder which includes a push-button switch, allowing a simple multi-function control interface to be achieved.

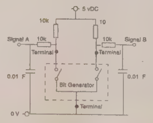
The outputs are two-bit streams in quadrature, as shown in the accompanying diagram.

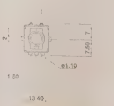
**Specifications**

| | |
|---|---|
| Operating temperature: | -40˚C to 85˚C |
| Max current per contact: | 5mA DC |
| Life (endless rotation): | 25,000 cycles |
| Operating torque: | 0.3 to 2Ncm |
| Push-on switch: | 0.5mm travel |
| Contact resistance (max): | 0.5 ohms |
| Pulses/detents: | 15/30 |

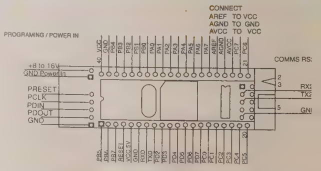

C
E
D
A
B
Bit Generator (rotary)
Push- on momentary switch


Sequence. AB
D
OPEN
CLOSED
OPEN
CLOSED
(A-C)
(B-C)
CW
D=Detent


5 vDC
10k
10
Signal A
10k
10k
Signal B
Terminal
Terminal
0.01 F
0.01 F
Bit Generator
Terminal
0 V

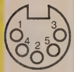
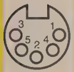

5
2
7
7.50
ø1.10
1 80
13 40

# HOTCHIP


CONNECT
AREF TO VCC
AGND TO GND
AVCC TO VCC
PROGRAMING / POWER IN
COMMS RS
+8 to 16V
GND Power In
PRESET
PCLK
PDIN
PDOUT
GND
40
VCC
GND
PB4
PB3
PB2
PB1
PB0
PA0
PA1
PA2
PA3
PA4
PA5
PA6
PA7
AREF
AGND
AVCC
PC7
PC6
21
2
3
5
RX
TX
GN
PB5
PB6
PB7
RESET
VCC 5V
GND
RXD
TXD
PD2
PD3
PD4
PD5
PD6
PD7
PC0
PC1
PC2
PC3
PC4
PC5
20

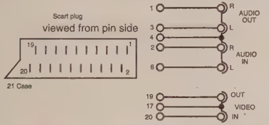
# COMMON CONNECTORS

## DIN CONNECTORS

| Contact Arrangement | Application | | Connections | | | | |
|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 |
| MALE PLUG | Microphone | Mono (balanced) | Hot lead | | Return lead | | |
| | | Mono (unbalanced) | Hot lead | | | | |
|  | Microphone | Stereo (balanced) | Hot lead of left-hand channel | | Return lead of left-hand channel | Hot lead of right-hand channel | Return lead of right-hand channel |
| | | Stereo (unbalanced) | Hot lead of left-hand channel | | | Hot lead of right-hand channel | |
| FEMALE SOCKET | Turntable | | Monaural system | Screening earth | Hot lead | | Connected to 3 |
| | | Stereophonic system | | | Hot lead of left-hand channel | | Hot lead of right-hand channel |
|  | Tape Recorder | Monaural system | Input signal | | Output signal | Connected to 1 | Connected to 3 |
| | | Stereophonic system | Input signal of left-hand channel | | Output signal of left-hand channel | Input signal of right-hand channel | Output signal of right-hand channel |

## SCART CONNECTOR

The Scart connector, also known as the Euroconnector or Peri-Television connector, is part of a system for connecting television receivers and other home entertainment equipment. A Scart connector has 21 pins which provide for stereo audio and composite video in and out, RGB, two data lines and two control lines. A variation allows for separate chrominance and lumunance signals.



**Notes:**

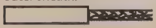
1. Pin 8 is used to select between an internal and external composite video signal. +12 Volts applied to this pin will enable the composite video input on pin 20. Alternatively, this pinput may be enabled via a control on the video display device, e.g. an external AV select switch.
2. Pin 16 is a control line to select the external RGB inputs. +3 Volts applied to this pin enables the RGB inputs on pins 15, 11 and 7.
3. When used for S-VHS signals, pin 15 carries chrominance and pin 20 luminance.
4. Pin 10 and 14 have been assigned for data for controlling and monitoring other appliances.

| PIN | USE | LEVEL/IMPEDANCE |
|---|---|---|
| 1 | Audio Output (R) | 0.5V/1K-Ohm |
| 2 | Audio Input (R) | 0.5V/10K-Ohm |
| 3 | Audio Output (L) | 0.5V/1K-Ohm |
| 4 | Audio Ground | |
| 5 | Blue Ground | |
| 6 | Audio Input (L) | 0.5V/10K-Ohm |
| 7 | Blue | 0.7Vp-p/75 Ohm |
| 8 | Status (CVBS) | L: 0-2V H: 10-12V/10K-Ohm |
| 9 | Green Ground | |
| 10 | Data D2B (Inverted) | |
| 11 | Green | 0.7Vp-p/75 Ohm |
| 12 | Data D2B | |
| 13 | Red Ground | |
| 14 | D2B Ground | |
| 15 | Red | 0.7Vp-p/75 Ohm |
| 16 | RGB Status/Fast Blanking | L: 0-0.4V H: 1–3V/75 Ohm |
| 17 | CVBS Video Ground | |
| 18 | RGB Status Ground | |
| 19 | Composite Video Output | 1V/75 Ohm |
| 20 | Composite Video Input | 1V/75 Ohm |
| 21 | Case/shield | |

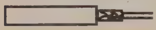
## WIRING RF PLUGS

### BELLING-LEE TYPE

Step 1.
Cut end of cable evenly and remove 22mm of outer sheath.



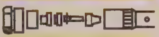
Step 2:
Remove 16mm of braid and dielectric, taking care not to damage centre conductor. Lightly tin conductor.



Step 3:
Slide cap and collet clamp over cable and slightly squeeze collet in position. Comb braid out and fan back over collet.

Step 4:
Solder tip of plug to centre conductor. Do not overheat. Push sub-assembly into body of plug, and screw cap onto body to complete assembly.

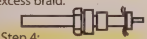
### BNC TYPE (FEMALE)



Step 1:
Cut end of cable evenly and remove 8mm of outer sheath.

Step 2:
Slide clamp nut and pressure sleeve over cable, and comb out braid.

Step 3:
Fold braid back and insert ferrule between braid and dielectric. Trim off excess braid.



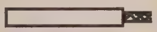
Step 4:
Remove 5mm of dielectric without damaging centre conductor. Tin conductor.

Step 5:
Slide rear insulator over conductor hard against rear insulator. Solder contact to conductor.

Step 6:
Fit front insulator in body and push sub-assembly onto body. Slide pressure sleeve into body and screw in the clamp nut to clamp cable.

### BNC TYPE (MALE)

Step 1:
Cut end of cable evenly, and remove 7mm of outer sheath.

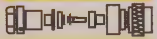


Step 2:
Slide clamp-nut, washer and rubber spacer over cable. Slide pressure sleeve over braid, and fan out braid.

Step 3:
Fold back braid against pressure sleeve and trim off excess. Strip 4mm of inside insulation off centre wire. Solder pin onto centre wire.

Step 4:
Fit assembly, pin first, into main receptacle. Push washer, rubber spacer and clamp nut up and screw into place.

### 'N' TYPE



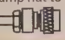
Step 1:
Cut end of cable evenly and remove 9mm of outer sheath.

Step 2:
Slide clamp nut and pressure sleeve over cable, and comb out braid.

Step 3:
Fold braid back and insert ferrule between braid and dielectric. Trim off excess braid and remove 5.5mm dielectric without damaging inner conductor. Tin end of conductor.

Step 4:
Slide rear insulator over conductor and position against end of dielectric. Slide contact over conductor until hard against rear insulator. Solder contact to conductor.

Step 5:
Fit front insulator in body and push sub-assembly into body. Slide pressure sleeve into body and screw in the clamp nut to clamp cable.



### UHF TYPE

Step 1:
Cut end of cable evenly and remove 27mm of outer sheath.

Step 2:
Slide coupling ring and adaptor onto sheath. Fan braid back over sheath.

Step 3:
Compress braid around cable and position adaptor so braid fans over adaptor. Trim off excess braid.

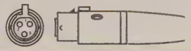
Step 4:
Remove 12.5mm dielectric and tin conductor. Screw the plug assembly onto cable and solder plug to braid through solder holes.

Step 5:
Solder conductor to centre pin and screw coupling ring onto assembly.

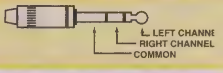
## 3-PIN XLR CONNECTORS

Widely used in professional audio applications these connectors generally offer a locking mechanism, very good cable clamping and low contact resistance. The pins are arranged so that when the connectors mate, one pin (used as the ground pin) always makes contact before the other two.

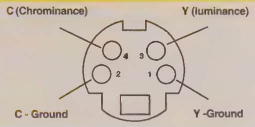
| IEC STANDARD | COMMON ALTERNATIVE |
|---|---|
| 1. Earth/Shield | 1. Earth/Shield |
| 2. In Phase (hot) | 2. Out of Phase |
| 3. Out of Phase (cold) | 3. In Phase |



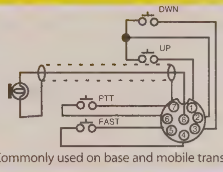
## HEADPHONE PLUG



## S-VIDEO CONNECTOR



## YAESU 8-PIN MICROPHONE

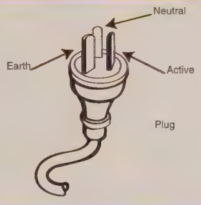


Commonly used on base and mobile transceivers

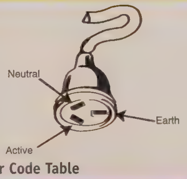
## GET IT RIGHT!

Note the locations of the Active, Neutral and Earth pins, and their associated wire colours in the table below. If you are replacing a mains plug or socket on an extension cord, then follow exactly the wiring instructions supplied with the mains plug or socket.

## PLUG



## SOCKET



### Colour Code Table

| CONDUCTOR | | OLD |
|---|---|---|
| Active | Brown | Red |
| Neutral | Blue | Black |
| Earth | Green/Yellow | Green |

## HEXADECIMAL CONSTANTS

| HEX CODE | MOST SIGNIFICANT BYTES IV | III | LEAST SIGNIFICANT BYTES II | I |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 1 | 4096 | 256 | 16 | 1 |
| 2 | 8192 | 512 | 32 | 2 |
| 3 | 12288 | 768 | 48 | 3 |
| 4 | 16384 | 1024 | 64 | 4 |
| 5 | 20480 | 1280 | 80 | 5 |
| 6 | 24576 | 1536 | 96 | 6 |
| 7 | 28672 | 1792 | 112 | 7 |
| 8 | 32768 | 2048 | 128 | 8 |
| 9 | 36864 | 2304 | 144 | 9 |
| A | 40960 | 2560 | 160 | 10 |
| B | 45056 | 2816 | 176 | 11 |
| C | 49152 | 3072 | 192 | 12 |
| D | 53248 | 3328 | 208 | 13 |
| E | 57344 | 3584 | 224 | 14 |
| F | 61440 | 3840 | 240 | 15 |

### HEX-TO-DECIMAL CONVERSION

Decimal Value = IV + III + II + I

## THE RS-232C INTERFACE

### THE BASIC RS-232C ELECTRICAL SPECIFICATION

Communication rate:

0-20,000 bits per second

Driver output voltage levels maximum no load:

-25 Volt logic 1, +25 Volt logic 0

Driver output voltage ranges for loads between 3k and 7k Ohms:

logic 1: -15 Volt (7k) and -5 Volt (3k)
logic 0: +15 Volt (7k) and +5 Volt (3k)

Driver output current, short circuit:

500mA maximum

Driver output impedance with power off:

300 Ohms minimum

Maximum driver output slew rate:

30 Volt per microsecond

Receiver input resistance:

7k Ohms maximum
3k Ohms minimum

Effective receiver input capacitance:

2500pF maximum

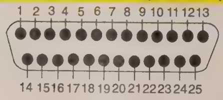
Maximum receiver input voltage range:

-25V to +25V

The following table shows the nine most common signals used for serial communications and their pin allocations for nine and 25 pin connectors.

|  | SIGNAL NAME | PIN NO. (9 PIN) | PIN NO. (25 PIN) |
|---|---|---|---|
| TD | Transmitted Data | 3 | 2 |
| RD | Received Data | 2 | 3 |
| RTS | Request to Send | 7 | 4 |
| CTS | Clear to Send | 8 | 5 |
| DSR | Data Set Ready | 6 | 6 |
| SG | Signal Ground | 5 | 7 |
| CD | Carrier Detect | 1 | 8 |
| DTR | Data Terminal Ready | 4 | 20 |
| RI | Ring Indicator | 9 | 22 |

### DB25 SERIAL MALE PLUG (FRONT VIEW)



## ASCII CHARACTER CODES AS DEFINED IN ANSI X3.4

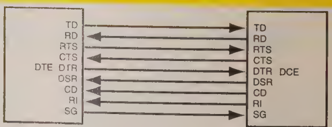
| DEC | HEX | CHAR | DEC | HEX | CHAR | DEC | HEX | CHAR | DEC | HEX | CHAR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | NUL | 33 | 21 | ! | 66 | 42 | B | 99 | 63 | c |
| 1 | 1 | SOH | 34 | 22 | " | 67 | 43 | C | 100 | 64 | d |
| 2 | 2 | STX | 35 | 23 | # | 68 | 44 | D | 101 | 65 | e |
| 3 | 3 | ETX | 36 | 24 | $ | 69 | 45 | E | 102 | 66 | f |
| 4 | 4 | EOT | 37 | 25 | % | 70 | 46 | F | 103 | 67 | g |
| 5 | 5 | ENQ | 38 | 26 | & | 71 | 47 | G | 104 | 68 | h |
| 6 | 6 | ACK | 39 | 27 | ' | 72 | 48 | H | 105 | 69 | i |
| 7 | 7 | BEL | 40 | 28 | ( | 73 | 49 | I | 106 | 6A | j |
| 8 | 8 | BS | 41 | 29 | ) | 74 | 4A | J | 107 | 6B | k |
| 9 | 9 | HT | 42 | 2A | * | 75 | 4B | K | 108 | 6C | l |
| 10 | A | LF | 43 | 2B | + | 76 | 4C | L | 109 | 6D | m |
| 11 | B | VT | 44 | 2C | , | 77 | 4D | M | 110 | 6E | n |
| 12 | C | FF | 45 | 2D | - | 78 | 4E | N | 111 | 6F | o |
| 13 | D | CR | 46 | 2E | . | 79 | 4F | O | 112 | 70 | p |
| 14 | E | SO | 47 | 2F | / | 80 | 50 | P | 113 | 71 | q |
| 15 | F | SI | 48 | 30 | 0 | 81 | 51 | Q | 114 | 72 | r |
| 16 | 10 | DLE | 49 | 31 | 1 | 82 | 52 | R | 115 | 73 | s |
| 17 | 11 | DC1 | 50 | 32 | 2 | 83 | 53 | S | 116 | 74 | t |
| 18 | 12 | DC2 | 51 | 33 | 3 | 84 | 54 | T | 117 | 75 | u |
| 19 | 13 | DC3 | 52 | 34 | 4 | 85 | 55 | U | 118 | 76 | v |
| 20 | 14 | DC4 | 53 | 35 | 5 | 86 | 56 | V | 119 | 77 | w |
| 21 | 15 | NAK | 54 | 36 | 6 | 87 | 57 | W | 120 | 78 | x |
| 22 | 16 | SYN | 55 | 37 | 7 | 88 | 58 | X | 121 | 79 | y |
| 23 | 17 | ETB | 56 | 38 | 8 | 89 | 59 | Y | 122 | 7A | z |
| 24 | 18 | CAN | 57 | 39 | 9 | 90 | 5A | Z | 123 | 7B | { |
| 25 | 19 | EM | 58 | 3A | : | 91 | 5B | [ | 124 | 7C | \| |
| 26 | 1A | SUB | 59 | 3B | ; | 92 | 5C | \ | 125 | 7D | } |
| 27 | 1B | ESC | 60 | 3C | < | 93 | 5D | ] | 126 | 7E | ~ |
| 28 | 1C | FS | 61 | 3D | = | 94 | 5E | → | 127 | 7F | DEL |
| 29 | 1D | GS | 62 | 3E | > | 95 | 5F | - |  |  |  |
| 30 | 1E | RS | 63 | 3F | ? | 96 | 60 | ' |  |  |  |
| 31 | 1F | US | 64 | 40 | @ | 97 | 61 | a |  |  |  |
| 32 | 20 | SPACE | 65 | 41 | A | 98 | 62 | b |  |  |  |

## ASCII CONTROL CODES

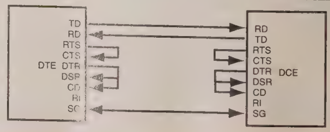
|  |  |  |  |  |  |
|---|---|---|---|---|---|
| NUL | (Ctrl @) | Null | DLE | (Ctrl P) | Data Link Escape |
| SOH | (Ctrl A) | Start of Heading | DC1 | (Ctrl Q) | Device Control 1 |
| STX | (Ctrl B) | Start of Text | DC2 | (Ctrl R) | Device Control 2 |
| ETX | (Ctrl C) | End of Text | DC3 | (Ctrl S) | Device Control 3 |
| EOT | (Ctrl D) | End of Transmission | DC4 | (Ctrl T) | Device Control 4 |
| ENQ | (Ctrl E) | Enquiry | NAK | (Ctrl U) | Negative Acknowledge |
| ACK | (Ctrl F) | Acknowledge | SYN | (Ctrl V) | Synchronous Idle |
| BEL | (Ctrl G) | Bell | ETB | (Ctrl W) | End of Transmission Block |
| BS | (Ctrl H) | Backspace | CAN | (Ctrl X) | Cancel |
| HT | (Ctrl I) | Horizontal Tab | EM | (Ctrl Y) | End of Medium |
| LF | (Ctrl J) | Line Feed | SUB | (Ctrl Z) | Substitute |
| VT | (Ctrl K) | Vertical Tab | ESC | (Ctrl [) | Escape |
| FF | (Ctrl L) | Form Feed | FS | (Ctrl \) | File Separator |
| CR | (Ctrl M) | Carriage Return | GS | (Ctrl ]) | Group Separator |
| SO | (Ctrl N) | Shift Out | RS | (Ctrl ^) | Record Separator |
| SI | (Ctrl O) | Shift In | US | (Ctrl _) | Unit Separator |

## COMMON RS-232C CONNECTIONS

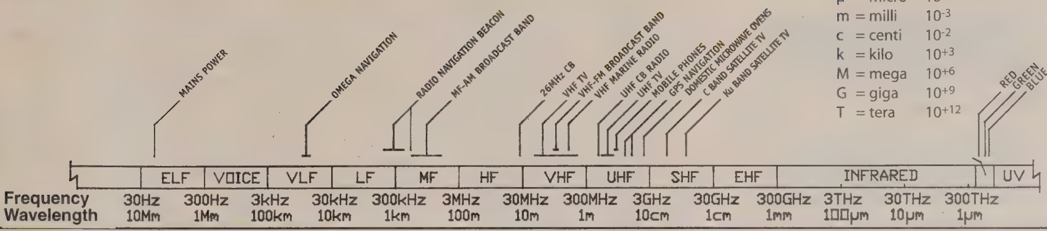
Each signal (except ground) is either an input or an output depending whether it is on the Data Terminal Equipment 'DTE' (e.g. a computer terminal) or the Data Circuit Terminating Equipment 'DCE' (e.g. a modem). A typical connection is shown here.



When two computer terminals (DTEs) are connected together a 'null modem' hook-up is needed to fool each DTE into thinking that it is connected to DCE. A typical null modem connection is shown here.



# THE ELECTROMAGNETIC SPECTRUM



**Prefixes**

µ = micro $10^{-6}$
m = milli $10^{-3}$
c = centi $10^{-2}$
k = kilo $10^{+3}$
M = mega $10^{+6}$
G = giga $10^{+9}$
T = tera $10^{+12}$

## NEW ZEALAND MF-AM BROADCAST STANDARDS

| | |
|---|---|
| **Frequency Range:** | 526.5-1605.5kHz |
| **Channel Frequencies:** | 531, 540, 549 ... 1593, 1602 (Note: Some special services are located slightly above this band. Receivers may need modification). |
| **Stereo Signal:** | Compatible quadrature amplitude modulation (C-Quam) 25Hz +/-0.1 Hz with a dev. of 3% to 5% of the quadrature chl |
| **Frequency Response:** | within 2dB (50Hz-7.5kHz) |
| **THD:** | Not exceeding 4% at 80% modulation (400Hz to 5kHz) |
| **Stereo Separation:** | 18dB min. |

## NEW ZEALAND VHF-FM BROADCAST STANDARDS

| | |
|---|---|
| **Frequency Range:** | 88-108MHz |
| **Channel Frequencies:** | 88.1, 88.3... 107.7, 107.9 |
| **Deviation:** | 75kHz |
| **Pre-emphasis/ De-emphasis:** | 50 microseconds |
| **Stereo Channel Subcarrier Frequency:** | 38kHz |
| **Pilot Frequency:** | 19kHz |

## COLOUR TV BROADCAST STANDARDS

| | |
|---|---|
| **Channel Width:** | 7 MHz vestigial sideband trans. |
| **Vision Carrier:** | 1.25MHz above lower frequency edge of channel |
| **Primary Sound Carrier:** | 5.5MHz above vision carrier |
| **Nicam Sound** | 728K Bit/sec |
| **Carrier:** | 5.85MHz above vision carrier |
| **Vision Modulation:** | Negative amplitude modulation |
| **Lines per Picture:** | 625 lines, interlaced 2:1 |
| **Line Frequency:** | 15625Hz |
| **Field Frequency:** | 50Hz |
| **Colour Subcarrier Frequency:** | 4.43361875 MHz |
| **Aspect Ratio:** | 4:3 |
| **Horizontal Sync Pulse Amplitude:** | 95% carrier amplitude |
| **Front Porch:** | 1.3 - 1.8us |
| **Back Porch:** | Line blanking interval - (front porch + sync pulse) |
| **Line Blanking Interval:** | 11.8 - 12.3us |
| **Black and Blanking Level:** | 76% peak carrier level |
| **White Level:** | 20% peak carrier level |
| **Pre-equalisation Pulse Interval:** | 2.5H (H=line period, 64 us) |
| **Post-equalisation Pulse Interval:** | 2.5H |
| **Field Sync Pulse Interval:** | 2.5H |
| **Field Blanking Interval:** | 2.5 +12us |
| **Ratio peak vision to peak sound carrier:** | Single sound carrier systems: 10dB |
| **Sound Modulation:** | FM |
| **Sound Deviation:** | +/-50kHz |
| **Audio Pre-emphasis** | 50us |

## TIMING, TEST AND DATA SIGNALS PRESENT IN THE VERTICAL SYNC PULSE

| Line | Use |
|---|---|
| 625 – 2.5 | Serrated Vertical Sync Pulse |
| 2.5 – 5 | Equalising Pulses |
| 6 | Blank for Noise Test |
| 7 – 8 | Teletext Data |
| 9 – 10 | Datacast |
| 11 – 15 | Teletext Data |
| 16 | Data Signals/Time Code |
| 17 – 18 | Teletext Data |
| 19 | Composite Test Signal |
| 20 | Pal Multiburst Test Signal |
| 21 | Teletext Subtitles |
| 22 | Blank for Noise Test |
| 23 – 309 | Viewable Picture Lines, Field 1 |
| 310 – 312.5 | Equalising Pulses |
| 312 – 331 | Same as Lines 1 – 18 |
| 332 | Colour Bar Test Signal |
| 333 | Modulated Pedestal Signal, |
| 334 | Teletext Subtitles |
| 335 | Blank for Noise Test |
| 336 – 622 | Viewable Picture Lines, Field 2 |
| 623 – 624 | Equalising Pulses |

## VHF MARINE FREQUENCIES

| Ch | Freq. Ship | (MHz) Shore | Ch | Freq. Ship | (MHz) Shore |
|---|---|---|---|---|---|
| 1 | 156.050 | 160.650 | 60 | 156.025 | 160.625 |
| 2 | 156.100 | 160.700 | 61 | 156.075 | 160.675 |
| 3 | 156.150 | 160.750 | 62 | 156.125 | 160.725 |
| 4 | 156.200 | 160.800 | 63 | 156.175 | 160.775 |
| 5 | 156.250 | 160.850 | 64 | 156.225 | 160.825 |
| 6 | 156.300 | 156.300 | 65 | 156.275 | 160.875 |
| 7 | 156.350 | 160.950 | 66 | 156.325 | 160.925 |
| 8 | 156.400 | 156.400 | 67 | 156.375 | 156.375 |
| 9 | 156.450 | 156.450 | 68 | 156.425 | 156.425 |
| 10 | 156.500 | 156.500 | 69 | 156.475 | 156.475 |
| 11 | 156.550 | 156.550 | 70 | 156.525 | 156.525 |
| 12 | 156.600 | 156.600 | 71 | 156.575 | 156.575 |
| 13 | 156.650 | 156.650 | 72 | 156.625 | 156.625 |
| 14 | 156.700 | 156.700 | 73 | 156.675 | 156.675 |
| 15 | 156.750 | 156.750 | 74 | 156.725 | 156.725 |
| 16 | 156.800 | 156.800 | 77 | 156.875 | 156.875 |
| 17 | 156.850 | 156.850 | 78 | 156.925 | 161.525 |
| 18 | 156.900 | 161.500 | 79 | 156.975 | 161.575 |
| 19 | 156.950 | 161.550 | 80 | 157.025 | 161.625 |
| 20 | 157.000 | 161.600 | 81 | 157.075 | 161.675 |
| 21 | 157.050 | 161.650 | 82 | 157.125 | 161.725 |
| 22 | 157.100 | 161.700 | 83 | 157.175 | 161.775 |
| 23 | 157.150 | 161.750 | 84 | 157.225 | 161.825 |
| 24 | 157.200 | 161.800 | 85 | 157.275 | 161.875 |
| 25 | 157.250 | 161.850 | 86 | 157.325 | 161.925 |
| 26 | 157.300 | 161.900 | 87 | 157.375 | 161.975 |
| 27 | 157.350 | 161.950 | 87A | 157.375 | 157.375 |
| 28 | 157.5000 | 162.000 | 88 | 157.425 | 162.025 |

| Chl | Use |
|---|---|
| 6 | SAR, Port Operations, Commercial |
| 8 | Port Operations, Commercial |
| 9-14 | Port Operations |
| 16 | Distress and Safety |
| 20 | Port Operations |
| 23-28 | Public Correspondence (Seaphone) |
| 67 | Distress and Safety |
| 68 | Port Operations |
| 71 | Professional Fishing |
| 72 | Yachts, Commercial, Professional Fishing, Port Operations |
| 73 | Non-Commercial, Yachts, etc. |
| 74 | Commercial |
| 77 | Yachts, Professional Fishing |
| 78 | Commercial |
| 79 | Port Operations |
| 87 | Public Correspondence (Seaphone) |
| 87A | Withdrawn 31-3-92 |

## UHF TV CHANNELS

Channels 27 to 62 are UHF Band (Band IV and V-518 to 806 MHz).

Transmissions conform to 625 line CCIR System B on VHF and The vision carrier frequency is nominally 1.25 MHz above the vision carrier frequency; the centre frequency of the NICAM digital sound carrier (if transmitted) is 5.850 MHz above the vision carrier frequency. The B/G variant of 728 NICAM is used which has a total occupied band width of 510 kHz.

| Channel Number | Frequency Limits (MHz) | Vision Carrier (MHz) | FM Sound Carrier (MHz) | NICAM Sound Carrier (MHz) |
|---|---|---|---|---|
| UHF | | | | |
| 27 | 518 to 526 | 519.25 | 524.75 | 525.10 |
| 28 | 526 to 534 | 527.25 | 532.75 | 533.10 |
| 29 | 534 to 542 | 535.25 | 540.75 | 541.10 |
| 30 | 542 to 550 | 543.25 | 548.75 | 549.10 |
| 31 | 550 to 558 | 551.25 | 556.75 | 557.10 |
| 32 | 558 to 566 | 559.25 | 564.75 | 565.10 |
| 33 | 566 to 574 | 567.25 | 572.75 | 573.10 |
| 34 | 574 to 582 | 575.25 | 580.75 | 581.10 |
| 35 | 582 to 590 | 583.25 | 588.75 | 589.10 |
| 36 | 590 to 598 | 591.25 | 596.75 | 597.10 |
| 37 | 598 to 606 | 599.25 | 604.75 | 605.10 |
| 38 | 606 to 614 | 607.25 | 612.75 | 613.10 |
| 39 | 614 to 622 | 615.25 | 620.75 | 621.10 |
| 40 | 622 to 630 | 623.25 | 628.75 | 629.10 |
| 41 | 630 to 638 | 631.25 | 636.75 | 637.10 |
| 42 | 638 to 646 | 639.25 | 644.75 | 645.10 |
| 43 | 646 to 654 | 647.25 | 652.75 | 653.10 |
| 44 | 654 to 662 | 655.25 | 660.75 | 661.10 |
| 45 | 662 to 670 | 663.25 | 668.75 | 669.10 |
| 46 | 670 to 678 | 671.25 | 676.75 | 677.10 |
| 47 | 678 to 686 | 679.25 | 674.75 | 685.10 |
| 48 | 686 to 694 | 687.25 | 692.75 | 693.10 |
| 49 | 694 to 702 | 695.25 | 700.75 | 701.10 |
| 50 | 702 to 710 | 703.25 | 708.75 | 709.10 |
| 51 | 710 to 718 | 711.25 | 716.75 | 717.10 |
| 52 | 718 to 726 | 719.25 | 724.75 | 725.10 |
| 53 | 726 to 734 | 727.25 | 732.75 | 733.10 |
| 54 | 734 to 742 | 735.25 | 740.75 | 741.10 |
| 55 | 742 to 750 | 743.25 | 748.75 | 749.10 |
| 56 | 750 to 758 | 751.25 | 756.75 | 757.10 |
| 57 | 758 to 766 | 759.25 | 764.75 | 765.10 |
| 58 | 766 to 774 | 767.25 | 772.75 | 773.10 |
| 59 | 774 to 782 | 775.25 | 780.75 | 781.10 |
| 60 | 782 to 790 | 783.25 | 788.75 | 789.10 |
| 61 | 790 to 798 | 781.25 | 796.75 | 797.10 |
| 62 | 798 to 806 | 799.25 | 804.75 | 805.10 |

## NEW ZEALAND VHF TV CHANNELS

| Ch. | Vision (MHz) | Sound (MHz) | Ch. | Vision (MHz) | Sound (MHz) |
|---|---|---|---|---|---|
| 1 | 45.25 | 50.75 | 7 | 196.25 | 201.75 |
| 2 | 55.25 | 60.75 | 8 | 203.25 | 208.75 |
| 3 | 62.25 | 67.75 | 9 | 210.25 | 215.75 |
| 4 | 175.25 | 180.75 | 10 | 217.25 | 222.75 |
| 5 | 182.25 | 187.75 | 11 | 224.25 | 229.75 |
| 6 | 189.25 | 194.75 | | | |

## AUSTRALIAN & NEW ZEALAND CB RADIO CHANNELS

| Ch No. | Aust. H.F. (MHz) | NZ UHF (MHz) | NZ H.F. (MHz) |
|---|---|---|---|
| 1 | 26.965 | 476.425 | 26.330 |
| 2 | 26.975 | 476.450 | 26.340 |
| 3 | 26.985 | 476.475 | 26.350 |
| 4 | 27.005 | 476.500 | 26.370 |
| 5 | 27.015 | 476.525 | 26.380 |
| 6 | 27.025 | 476.550 | 26.390 |
| 7 | 27.035 | 476.575 | 26.400 |
| 8 | 27.055 | 476.600 | 26.420 |
| 9 | 27.065 | 476.625 | 26.430 |
| 10 | 27.075 | 476.650 | 26.440 |
| 11 | 27.085 | 476.675 | 26.450 |
| 12 | 27.105 | 476.700 | 26.470 |
| 13 | 27.115 | 476.725 | 26.480 |
| 14 | 27.125 | 476.750 | 26.490 |
| 15 | 27.135 | 476.775 | 26.500 |
| 16 | 27.155 | 476.800 | 26.520 |
| 17 | 27.165 | 476.825 | 26.530 |
| 18 | 27.175 | 476.850 | 26.540 |
| 19 | 27.185 | 476.875 | 26.550 |
| 20 | 27.205 | 476.900 | 26.570 |
| 21 | 27.215 | 476.925 | 26.580 |
| 22 | 27.225 | 476.950 | 26.590 |
| 23 | 27.255 | 476.975 | 26.620 |
| 24 | 27.235 | 477.000 | 26.600 |
| 25 | 27.245 | 477.025 | 26.610 |
| 26 | 27.265 | 477.050 | 26.630 |
| 27 | 27.275 | 477.075 | 26.640 |
| 28 | 27.285 | 477.100 | 26.650 |
| 29 | 27.295 | 477.125 | 26.660 |
| 30 | 27.305 | 477.150 | 26.670 |
| 31 | 27.315 | 477.175 | 26.680 |
| 32 | 27.325 | 477.200 | 26.690 |
| 33 | 27.335 | 477.225 | 26.700 |
| 34 | 27.345 | 477.250 | 26.710 |
| 35 | 27.355 | 477.275 | 26.720 |
| 36 | 27.365 | 477.300 | 26.730 |
| 37 | 27.375 | 477.325 | 26.740 |
| 38 | 27.385 | 477.350 | 26.750 |
| 39 | 27.395 | 477.375 | 26.760 |
| 40 | 27.405 | 477.400 | 26.770 |

### Calling Channels

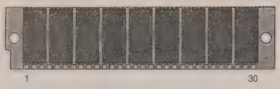
| | |
|---|---|
| Aust HF (AM) | Ch.11 |
| Aust HF (SSB) | Ch. 6 |
| Aust UHF | Ch.11 |
| NZ HF | Ch.15 |

### Emergency Channels

| | |
|---|---|
| Aust HF (AM) | Ch. 9 |
| Aust UHF | Ch. 5/35 |
| NZ HF | Ch.15 |

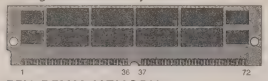
## 30 PIN SIMM MEMORY

SIMM = Single Inline Memory Module



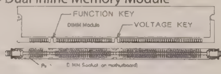
## 72 PIN SIMM MEMORY

SIMM = Single Inline Memory Module



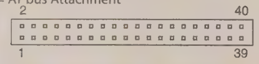
## 168 PIN DIMM MEMORY

DIMM = Dual Inline Memory Module



## PC – IDE/ATA BUS

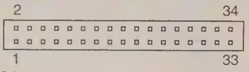
IDE = Integrated Drive Electronics
ATA = AT bus Attachment



PIN IDC MALE at the controller & peripherals

| Pin | IDE | Pin | IDE | Pin | ATA | Pin | ATA |
|---|---|---|---|---|---|---|---|
| 1 | /RESET | 21 | n/c | 1 | /RESET | 21 | DMARQ |
| 2 | GND | 22 | GND | 2 | GND | 22 | GND |
| 3 | DD7 | 23 | /IOW | 3 | DD7 | 23 | /IOW |
| 4 | DD8 | 24 | GND | 4 | DD8 | 24 | GND |
| 5 | DD6 | 25 | /IOR | 5 | DD6 | 25 | /IOR |
| 6 | DD9 | 26 | GND | 6 | DD9 | 26 | GND |
| 7 | DD5 | 27 | IO-CH-RDY | 7 | DD5 | 27 | IO-CH-RDY |
| 8 | DD10 | 28 | ALE | 8 | DD10 | 28 | |
| SPSYNC:CSEL | | | | | | | |
| 9 | DD4 | 29 | n/c | 9 | DD4 | 29 | /DMACK |
| 10 | DD11 | 30 | GND | 10 | DD11 | 30 | GND |
| 11 | DD3 | 31 | IRQR | 11 | DD3 | 31 | INTRQ |
| 12 | DD12 | 32 | /IOCS16 | 12 | DD12 | 32 | /IOCS16 |
| 13 | DD2 | 33 | DA1 | 13 | DD2 | 33 | DA1 |
| 14 | DD13 | 34 | n/c | 14 | DD13 | 34 | PDIAG |
| 15 | DD1 | 35 | DA0 | 15 | DD1 | 35 | DA0 |
| 16 | DD14 | 36 | DA2 | 16 | DD14 | 36 | DA2 |
| 17 | DD0 | 37 | /IDE-CS0 | 17 | DD0 | 37 | /IDE-CS0 |
| 18 | DD15 | 38 | /IDE-CS1 | 18 | DD15 | 37 | /IDE-CS1 |
| 19 | GND | 39 | /ACTIVE | 19 | GND | 39 | /ACTIVE |

## PC FLOPPY DRIVE IDC

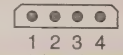


34 PIN IDC MALE at the computer & disk-drives. Can be an Edge-connector on old PCs.

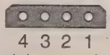
| Pin | Name | Description |
|---|---|---|
| 2 | /REDWC | Density Select |
| 4 | n/c | Reserved |
| 6 | n/c | Reserved |
| 8 | /INDEX | Index |
| 10 | /MOTEA | Motor Enable A |
| 12 | /DRVSB | Drive Sel B |
| 14 | /DRVSA | Drive Sel A |
| 16 | /MOTEB | Motor Enable B |
| 18 | /DIR | Direction |
| 20 | /STEP | Step |
| 22 | /WDATE | Write Data |
| 24 | /WGATE | Floppy Write Enable |
| 26 | /TRK00 | Track 0 |
| 28 | /WPT | Write Protect |
| 30 | /RDATA | Read Data |
| 32 | /SIDE1 | Head Select |
| 34 | /DSKCHG | Disk Change |

All odd pins are GND, Ground.

## PC 5.25" POWER



At the peripheral

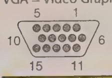


At the power supply

| Pin | Name | | Color | Description |
|---|---|---|---|---|
| 1 | +12V | □ | Yellow | +12 VDC |
| 2 | GND | ■ | Black | +12 V Ground |
| 3 | GND | ■ | Black | +5 V Ground |
| 4 | +5V | ▨ | RED | +5 VDC |

## PC VGA VIDEO (15 PIN)

VGA = Video Graphics Adapter or Video Graphics Array

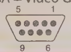


15 PIN HIGH DENSITY D-SUB FEMALE at the videocard

| Pin | Name | Description |
|---|---|---|
| 1 | RED | Red Video (75 ohm, 0.7 V p-p) |
| 2 | GREEN | Green Video (75 ohm, 0.7 V p-p) |
| 3 | BLUE | Blue Video (75 ohm, 0.7 V p-p) |
| 4 | ID2 | Monitor ID Bit 2 |
| 5 | GND | Ground |
| 6 | RGND | Red Ground |
| 7 | GGND | Green Ground |
| 8 | BGND | Blue Ground |
| 9 | KEY | Key (No pin) |
| 10 | SGND | Sync Ground |
| 11 | ID0 | Monitor ID Bit 0 |
| 12 | ID1 or SDA | Monitor ID Bit 1 |
| 13 | HSYNC or CSYNC | Horizontal Sync (or Composite Sync) |
| 14 | VSYNC | Vertical Sync |
| 15 | ID3 or SCL | Monitor ID Bit 3 |

## PC VGA VIDEO (9 PIN)

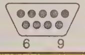
VGA = Video Graphics Adapter or Video Graphics Array



9 PIN D-SUB FEMALE at the videocard

| Pin | Name | Description |
|---|---|---|
| 1 | RED | Red Video |
| 2 | GREEN | Green Video |
| 3 | BLUE | Blue Video |
| 4 | HSYNC | Horizontal Sync |
| 5 | VSYNC | VerticalSync |
| 6 | RGND | Red Ground |
| 7 | GGND | Green Ground |
| 8 | BGND | Blue Ground |
| 9 | SGND | Sync Ground |

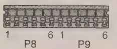
## VGA CABLE (9 PIN TO 15 PIN)



9 PIN D-SUB MALE to the computer

| Signal | 9-Pin | 15-Pin |
|---|---|---|
| Red Video | 1 | 1 |
| Green Video | 2 | 2 |
| Blue Video | 3 | 3 |
| Horizontal Sync | 4 | 13 |
| Vertical Sync | 5 | 14 |
| Red GND | 6 | 6 |
| Green GND | 7 | 7 |
| Blue GND | 8 | 8 |
| Sync GND | 9 | 10 + 11 |

## PC AT POWER

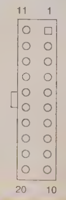


MOLEX 15-48-0106 at the Computer
90331-00 at the PSU

At the power supply At the peripheral

| Pin | Name | | Color | Description |
|---|---|---|---|---|
| 1 | PG | ▨ | Orange | Power Good, +5 VDC when all voltages have stabilised |
| 2 | +5V | ▨ | Red | +5 VDC (or n/c) |
| 3 | +12V | ■ | Yellow | +12 VDC |
| 4 | -12V | ■ | Blue | -12 VDC |
| 5 | GND | ■ | Black | Ground |
| 6 | GND | ■ | Black | Ground |
| | | ■ | | P9 |
| 1 | GND | ■ | Black | Ground |
| 2 | GND | □ | Black | Ground |
| 3 | -5V | ▨ | White or Yellow | -5 VDC |
| 4 | +5V | ▨ | Red | +5 VDC |
| 5 | +5V | ▨ | Red | +5 VDC |

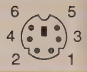
## PC ATX POWER



| Signal | Pin # | Pin # | Signal |
|---|---|---|---|
| 3.3V | 11 | 1 | 3.3V |
| -12V | 12 | 2 | 3.3V |
| Ground | 13 | 3 | Ground |
| PS-ON | 14 | 4 | +5V |
| Ground | 15 | 5 | Ground |
| Ground | 16 | 6 | +5V |
| Ground | 17 | 7 | Ground |
| -5V | 18 | 8 | Power good |
| +5V | 19 | 9 | 5VSB |
| +5V | 20 | 10 | +12V |

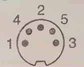
## PC KEYBOARD (PS/2)

6 PIN MINI-DIN FEMALE
(PS/2 STYLE) at the computer



| Pin | Name | Description |
|---|---|---|
| 1 | Data | Key Data |
| 2 | n/c | Not connected |
| 3 | GND | Ground |
| 4 | VCC | Power, +5 VDC |
| 5 | CLK | Clock |
| 6 | n/c | Not connected |

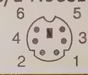
## PC KEYBOARD (AT)



5 PIN DIN 180° (DIN41524)
FEMALE at the computer

| Pin | Name | Description | Technical |
|---|---|---|---|
| 1 | CLOCK | Clock | CLK/CTS, Open-Collector |
| 2 | DATA | Data | RxD/TxD/RTS, Open-Collector |
| 3 | n/c | Not connected | Reset on some very old keyboards |
| 4 | GND | Ground | |
| 5 | VCC | +5 VDC | |

## PC PS/2 MOUSE PORT

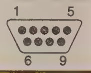


6 PIN MINI-DIN FEMALE
(PS/2 STYLE) at the computer

| Pin | Name | Description |
|---|---|---|
| 1 | Data | Mouse Data |
| 2 | n/c | Not connected |
| 3 | GND | Ground |
| 4 | VCC | Power, +5 VDC |
| 5 | CLK | Clock |
| 6 | n/c | Not connected |

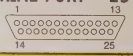
## PC SERIAL PORT – 9 PIN

9 PIN D-SUB MALE
at the computer



| Pin | Name | Description |
|---|---|---|
| 1 | CD | Carrier Detect |
| 2 | RXD | Receive Data |
| 3 | TXD | Transmit Data |
| 4 | DTR | Data Terminal Ready |
| 5 | GND | System Ground |
| 6 | DSR | Data Set Ready |
| 7 | RTS | Request to Send |
| 8 | CTS | Clear to Send |
| 9 | RI | Ring Indicator |

## PC SERIAL PORT – 25 PIN

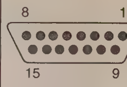


25 PIN D-SUB MALE
at the computer

| Pin | Name | Description |
|---|---|---|
| 1 | SHIELD | Shield Ground |
| 2 | TXD | Transmit Data |
| 3 | RXD | Receive Data |
| 4 | RTS | Request to Send |
| 5 | CTS | Clear to Send |
| 6 | DSR | Data Set Ready |
| 7 | GND | System Ground |
| 8 | CD | Carrier Detect |
| 9-19 | n/c | No Connection |
| 20 | DTR | Data Terminal Ready |
| 21 | n/c | No Connection |
| 22 | RI | Ring Indicator |
| 23-25 | n/c | No Connection |

## PC JOYSTICK GAME PORT

| Pin | Name | Description |
|---|---|---|
| 1 | +5V | +5 VDC |
| 2 | /B1 | Button 1 |
| 3 | X1 | Joystick 1-X |
| 4 | GND | Ground |
| 5 | GND | Ground |
| 6 | Y1 | Joystick 1-X |
| 7 | /B2 | Button 2 |
| 8 | +5V | +5 VDC |
| 9 | +5V | +5 VDC |
| 10 | /B4 | Button 4 |
| 11 | X2 | Joystick 2-X |
| 12 | MIDITXD | MIDI Transmit |
| 13 | Y2 | Joystick 2-Y |
| 14 | /B3 | Button 3 |
| 15 | MIDIRXD | MIDI Receive |

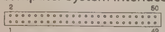


15 PIN D-SUB
FEMALE
at the computer

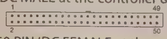
# COMPUTER CONNECTION DATA

## CSI INTERNAL – IDC

CSI = Small Computer System Interface



50 PIN IDC MALE at the controller & hard disk

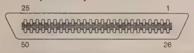


50 PIN IDC FEMALE at the cable

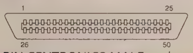
| Pin | Name | Description |
|---|---|---|
| 2 | DB0 | Data Bus 0 |
| 4 | DB1 | Data Bus 1 |
| 6 | DB2 | Data Bus 2 |
| 8 | DB3 | Data Bus 3 |
| 10 | DB4 | Data Bus 4 |
| 12 | DB5 | Data Bus 5 |
| 14 | DB6 | Data Bus 6 |
| 16 | DB7 | Data Bus 7 |
| 18 | PARITY | Data Parity (odd Parity) |
| 20 | GND | Ground |
| 22 | GND | Ground |
| 24 | GND | Ground |
| 26 | TMPWR | Termination Power |
| 28 | GND | Ground |
| 30 | GND | Ground |
| 32 | /ATN | Attention |
| 34 | GND | Ground |
| 36 | /BSY | Busy |
| 38 | /ACK | Acknowledge |
| 40 | /RST | Reset |
| 42 | /MSG | Message |
| 44 | /SEL | Select |
| 46 | /C/D | Control/Data |
| 48 | /REQ | Request |
| 50 | /I/O | Input/Output |

## CSI EXTERNAL – CENTRONICS

CSI = Small Computer System Interface



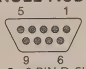
50 PIN CENTRONICS FEMALE at the controller

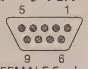


50 PIN CENTRONICS MALE at the cable

| Pin | Name | Description |
|---|---|---|
| -25 | GND | Ground |
| 26 | DB0 | Data Bus 0 |
| 27 | DB1 | Data Bus 1 |
| 28 | DB2 | Data Bus 2 |
| 29 | DB3 | Data Bus 3 |
| 30 | DB4 | Data Bus 4 |
| 31 | DB5 | Data Bus 5 |
| 32 | DB6 | Data Bus 6 |
| 33 | DB7 | Data Bus 7 |
| 34 | PARITY | Data Parity (odd Parity) |
| 35 | GND | Ground |
| 36 | GND | Ground |
| 37 | GND | Ground |
| 38 | TMPWR | Termination Power |
| 39 | GND | Ground |
| 40 | GND | Ground |
| 41 | /ATN | Attention |
| 42 | n/c | Not connected |
| 43 | /BSY | Busy |
| 44 | /ACK | Acknowledge |
| 45 | /RST | Reset |
| 46 | /MSG | Message |
| 47 | /SEL | Select |
| 48 | /C/D | Control/Data |
| 49 | /REQ | Request |
| 50 | /I/O | Input/Output |

## ERIAL NULL MODEM – 9 PIN



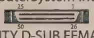


2x 9 PIN D-SUB FEMALE Sockets

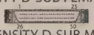
| Signal | Skt 1 | Skt 2 | Signal |
|---|---|---|---|
| Receive Data | 2 | 3 | Transmit Data |
| Transmit Data | 3 | 2 | Receive Data |
| Data Terminal Ready | 4 | 6+1 | Data Set Ready<br>Carrier Detect |
| System Ground | 5 | 5 | System Ground |
| Data Terminal Ready | 6+1 | 4 | Data Set Ready<br>Carrier Detect |

## SCSI EXTERNAL – HI-D SUB

SCSI = Small ComputerSystem Interface



50 PIN HI-DENSITY D-SUB FEMALE at the controller

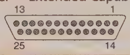


50 PIN HI-DENSITY D-SUB MALE at the cable

| Pin | Name | Description |
|---|---|---|
| 1-25 | GND | Ground |
| 26 | DB0 | Data Bus 0 |
| 27 | DB1 | Data Bus 1 |
| 28 | DB2 | Data Bus 2 |
| 29 | DB3 | Data Bus 3 |
| 30 | DB4 | Data Bus 4 |
| 31 | DB5 | Data Bus 5 |
| 32 | DB6 | Data Bus 6 |
| 33 | DB7 | Data Bus 7 |
| 34 | PARITY | Data Parity (odd Parity) |
| 35 | GND | Ground |
| 36 | GND | Ground |
| 37 | GND | Ground |
| 38 | TMPWR | Termination Power |
| 39 | GND | Ground |
| 40 | GND | Ground |
| 41 | /ATN | Attention |
| 42 | n/c | Not connected |
| 43 | /BSY | Busy |
| 44 | /ACK | Acknowledge |
| 45 | /RST | Reset |
| 46 | /MSG | Message |
| 47 | /SEL | Select |
| 48 | /C/D | Control/Data |
| 49 | /REQ | Request |
| 50 | /I/O | Input/Output |

## PC PARALLEL PORT (ECP)

ECP = Extended Capabilities Port

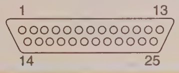


25 PIN D-SUB FEMALE at the PC

| Pin | Name | Description |
|---|---|---|
| 1 | nStrobe | Strobe |
| 2 | data0 | Address, Data or RLE Data Bit 0 |
| 3 | data1 | Address, Data or RLE Data Bit 1 |
| 4 | data2 | Address, Data or RLE Data Bit 2 |
| 5 | data3 | Address, Data or RLE Data Bit 3 |
| 6 | data 4 | Address, Data or RLE Data Bit 4 |
| 7 | data 5 | Address, Data or RLE Data Bit 5 |
| 8 | data6 | Address, Data or RLE Data Bit 6 |
| 9 | data7 | Address, Data or RLE Data Bit 7 |
| 10 | /nAck | Acknowledge |
| 11 | Busy | Busy |
| 12 | PError | Paper End |
| 13 | Select | Select |
| 14 | /nAutoFd | Autofeed |
| 15 | /nFault | Error |
| 16 | /nInit | Initialize |
| 17 | /nSelectIn | Select In |
| 18 | GND | Signal Ground |
| 19 | GND | Signal Ground |
| 20 | GND | Signal Ground |
| 21 | GND | Signal Ground |
| 22 | GND | Signal Ground |
| 23 | GND | Signal Ground |
| 24 | GND | Signal Ground |
| 25 | GND | Signal Ground |

## PARALLEL DATA TRANSFER CABLE

Works with: LapLink from Travelling Software; MS-DOS v6.0 InterLink from Microsoft; Windows Direct Cable connection from Microsoft; Norton Commander v4.0 and v5.0 from Symantec

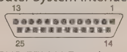


2x 25 PIN D-SUB MALE to each computer

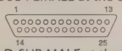
| Name | Plug 1 | Plug 2 | Name |
|---|---|---|---|
| Data Bit 0 | 2 | 15 | Error |
| Data Bit 1 | 3 | 13 | Select |
| Data Bit 2 | 4 | 12 | Paper Out |
| Data Bit 3 | 5 | 10 | Acknowledge |
| Data Bit 4 | 6 | 11 | Busy |
| Acknowledge | 10 | 5 | Data Bit 3 |
| Busy | 11 | 6 | Data Bit 4 |
| Paper Out | 12 | 4 | Data Bit 2 |
| Select | 13 | 3 | Data Bit 1 |
| Error | 15 | 2 | Data Bit 0 |
| Reset | 16 | 16 | Reset |
| Select | 17 | 17 | Select |
| Signal Ground | 25 | 25 | Signal Ground |

## SCSI EXTERNAL – D-SUB

SCSI = Small Computer System Interface



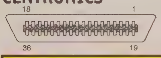
25 PIN D-SUB FEMALE at the controller



25 PIN D-SUB MALE at the cable

| Pin | Name | Description |
|---|---|---|
| 1 | GND | Ground |
| 2 | DB1 | Data Bus 1 |
| 3 | DB3 | Data Bus 3 |
| 4 | DB5 | Data Bus 5 |
| 5 | DB7 | Data Bus 7 |
| 6 | GND | Ground |
| 7 | /SEL | Select |
| 8 | GND | Ground |
| 9 | TMPWR | Termination Power |
| 10 | /RST | Reset |
| 11 | C/D | Control/Data |
| 12 | I/O | Input/Output |
| 13 | GND | Ground |
| 14 | DB0 | Data Bus 0 |
| 15 | DB2 | Data Bus 2 |
| 16 | DB4 | Data Bus 4 |
| 17 | DB6 | Data Bus 6 |
| 18 | PARITY | Data Parity |
| 19 | GND | Ground |
| 20 | /ATN | Attention |
| 21 | /MSG | Message |
| 22 | /ACK | Acknowledge |
| 23 | BSY | Busy |
| 24 | /REQ | Request |
| 25 | GND | Ground |

## CENTRONICS



36 PIN CENTRONICS FEMALE at the Printer

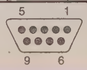
| Pin | Name | Description |
|---|---|---|
| 1 | /STROBE | Strobe |
| 2 | D0 | Data Bit 0 |
| 3 | D1 | Data Bit 1 |
| 4 | D2 | Data Bit 2 |
| 5 | D3 | Data Bit 3 |
| 6 | D4 | Data Bit 4 |
| 7 | D5 | Data Bit 5 |
| 8 | D6 | Data Bit 6 |
| 9 | D7 | Data Bit 7 |
| 10 | /ACK | Acknowledge |
| 11 | BUSY | Busy |
| 12 | POUT | Paper Out |
| 13 | SEL | Select |
| 14 | /AUTOFEED | Autofeed |
| 15 | n/c | Not used |
| 16 | 0 V | Logic Ground |
| 17 | CHASSIS GND | Shield Ground |
| 18 | +5 V PULLUP | +5 VDC (50mA max) |
| 19 | GND | Signal Ground (Strobe Ground) |
| 20 | GND | Signal Ground (Data 0 Ground) |
| 21 | GND | Signal Ground (Data 1 Ground) |
| 22 | GND | Signal Ground (Data 2 Ground) |
| 23 | GND | Signal Ground (Data 3 Ground) |
| 24 | GND | Signal Ground (Data 4 Ground) |
| 25 | GND | Signal Ground (Data 5 Ground) |
| 26 | GND | Signal Ground (Data 6 Ground) |
| 27 | GND | Signal Ground (Data 7 Ground) |
| 28 | GND | Signal Ground (Acknowledge Ground) |
| 29 | GND | Signal Ground (Busy Ground) |
| 30 | /GNDRESET | Reset Ground |
| 31 | /RESET | Reset |
| 32 | /FAULT | Fault (Low when offline) |
| 33 | 0 V | Signal Ground |
| 34 | n/c | Not used |
| 35 | +5 V | +5 VDC |
| 36 | /SLCT IN | Select In (Taking low or high sets printer on line or off line respectively) |

## SERIAL LOOPBACK – 9 PIN

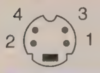
Works with CheckIt

| Name | Link Pins | | Name |
|---|---|---|---|
| CD | 1 | 6 | DSR |
| CD | 1 | 9 | RI |
| RXD | 2 | 3 | TXD |
| DTR | 4 | 6 | DSR |
| RTS | 7 | 8 | CTS |

9 PIN D-SUB FEMALE Sockets



## S-VIDEO

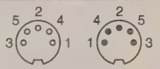


4 PIN MINI-DIN FEMALE at the PC

| Pin | Name | Description |
|---|---|---|
| 1 | GND | Ground (Y) |
| 2 | GND | Ground (C) |
| 3 | Y | Intensity (Luminance) |
| 4 | C | Colour (Chrominance) |

## MIDI OUT

MIDI = Musical Instrument Digital Interface

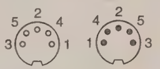


5 PIN DIN FEMALE at device 5 PIN DIN MALE at cable

| Pin | Name | Description |
|---|---|---|
| 1 | n/c | Not connected |
| 2 | GND | Ground |
| 3 | n/c | Not connected |
| 4 | CSINK | Current Sink |
| 5 | CSRC | Current Source |

## MIDI IN

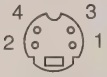
MIDI = Musical Instrument Digital Interface



5 PIN DIN FEMALE at device 5 PIN DIN MALE at cable

| Pin | Name | Description |
|---|---|---|
| 1 | n/c | Not connected |
| 2 | n/c | Not connected |
| 3 | n/c | Not connected |
| 4 | CSINK | Current Sink |
| 5 | CSRC | Current Source |

## MAC KEYBOARD

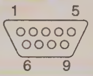


4 PIN MINI DIN

| Pin | Name |
|---|---|
| 1 | DATA |
| 2 | PWR N |
| 3 | +5V |
| 4 | GND |

## MAC SERIAL PORT

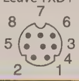
9 PIN D-SUB MALE at the Computer



| Pin | Name | Description |
|---|---|---|
| 1 | GND | Ground |
| 2 | +5V | +5 VDC. Don't use this one, it may be converted into output handshake in later equipment. |
| 3 | GND | Ground |
| 4 | Tx+ | Transmit Data, positive going component |
| 5 | Tx- | Transmit Data, negative going component |
| 6 | +12V | +12 VDC |
| 7 | DSR/HSK | Handshake input. Signal name depends on mode: Use for Flow Control or Clock in. |
| 8 | Rx+ | Receive Data, positive going component |
| 9 | Rx- | Receive Data, negative going component |

## MAC RS-422

It's possible to connect RS-232 peripheral to the RS-422 port available on Macintosh computers. Use RXD- as RXD, TXD- as TXD, Groud RXD+. Leave TXD+ unconnected, GPi as CD.



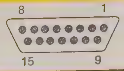
8 PIN MINI-DIN FEMALE at the computer

| Pin | Name | Description |
|---|---|---|
| 1 | HSKo | Output Handshake |
| 2 | HSKi/CLK | Input Handshake or External Clock |
| 3 | TXD- | Transmit Data (-) |
| 4 | GND | Ground |
| 5 | RXD- | Receive Data (-) |
| 6 | TXD+ | Transmit Data (+) |
| 7 | GPi | General Purpose Input |
| 8 | RXD+ | Receive Data (+) |

GPi is connected to SCC Data Carrier Detect (or to Receive/Transmit Clock if the VIA1 SYNC signal is high). Not connected on the Macintosh Plus, Classic, Classic II, LC, LC II or IIsi.

## MAC VIDEO

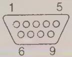
15 PIN D-SUB FEMALE at the Computer



| Pin | Name | Description |
|---|---|---|
| 1 | RGND | Red Ground |
| 2 | R | Red |
| 3 | CSYNC | Composite sync |
| 4 | SENSE0 | Monitor Sense 0 |
| 5 | G | Green |
| 6 | GGND | Green Ground |
| 7 | SENSE1 | Monitor Sense 1 |
| 8 | n/c | No connection |
| 9 | B | Blue |
| 10 | SENSE2 | Monitor Sense 2 |
| 11 | SGND | Sync Ground |
| 12 | VSYNC | Vertical Sync |
| 13 | BGND | Blue Ground |
| 14 | HSYCGND | Horizontal Sync Ground |
| 15 | HSYNC | Horizontal Sync |

## MAC MOUSE

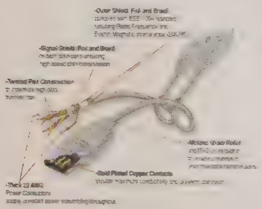
9 PIN D-SUB MALE at the Computer



| Pin | Name | Description |
|---|---|---|
| 1 | CGND | Chassis Ground |
| 2 | +5V | +5 VDC |
| 3 | CGND | Chassis Ground |
| 4 | X2 | Horizontal movement line (connected to VIA PB4 line) |
| 5 | X1 | Horizontal movement line (connected to SCC DCDA-line) |
| 6 | n/c | Not connected |
| 7 | SW- | Mouse button line (connected to VIA PB3) |
| 8 | Y2 | Vertical movement line (connected to VIA PB5 line) |
| 9 | Y1 | Vertical movement line (connected to SCC DCDB-line) |

## IEEE1394 – FIREWIRE™

The IEEE 1394 standard is a fast, scalable, digital interface. It was conceived by Apple® Computer and developed within the IEEE 1394 Working Group. It is generally referred to as FireWire™ – the Apple trademarked name. FireWire is an all-digital interface primarily targeted as a digital interface for consumer electronics and AV peripherals. Because FireWire is a peer-to-peer interface, it makes it possible to dub from one device (a digital video camera, for instance) to another without a compute. It also enables multiple computers to share a given peripheral without any special support in the peripheral or the computers.


Outer Shield: Foil and Braid
Signal Shield: Foil and Braid
Twisted Pair Construction
Molded Strain Relief
Gold Plated Copper Contacts
Thick 22 AWG Power Conductors

FireWire supports data rates of 100, 200, and 400 Mbps. It supports up to 63 devices, with a maximum cable length of 4.5 metres between devices. The maximum number of hops in a chain is 16, for a total maximum end-to-end distance of 72 metres. The IEEE 1394 standard supports daisychaining and branching or peer-to-peer implementations. Connections can be free-form, mixing branches and daisychains.

In addition to is high speed, FireWire supports isochronous, as well as asynchronous, data delivery, providing a guaranteed data rate without lags or slowdowns.

There are two types of FireWire connectors: 6-pin and 4-pin. The 6-pin connector, usually found on computers, provides two pairs of wires for signals and one pair of wires to provide power to external equipment. Many FireWire computer peripherals draw their power directly from the interface. Computer peripherals using 6-pin FireWire connectors generally feature at least two, and often three, FireWire connectors for daisychaining.

The 4-wire FireWire connector is usually found on consumer electronics such as camcorders, VCRs, and video game systems. It provides four signal wires but no power wires. Devices using the 4-pin FireWire connection generally have only one connector and aren't daisychained. When using a device such as a camcorder with your PC, you'll need a 6-pin-to-4-pin cable to convert the interface (XH3262).

## USB

USB - Universal Serial Bus

USB's main attraction is that it makes adding peripherals to a computer incredibly easy and most new PCs available today feature at least one USB port. Older PCs with a free PCI slot can be upgraded to incorporate USB by installing a USB I/O Card – 2 port = XH6646 or 4 Port = XH6667.

Windows®95, Rev. 2.1 (Win95B), Win 98, Win ME, Win XP, Win 200, Macintosh® OS 8 currently support USB.

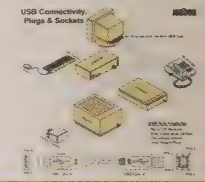
A USB peripheral simply plugs into the port and works. If the computer supports USB, you don't need to install a card; you don't even need to turn off your computer. USB devices are completely hot-swappable.

USB uses a tiered star topology, meaning that USB devices called hubs can serve as connection ports for other USB devices. Only once device needs to be actually plugged into your PC.

USB supports hubs that can be either standalone (XH7230) or embedded within some other device such as a keyboard, monitor or disk drive. A single USB port can support up to 127 devices.

USB has two data rates: 12 Mbps for devices such as disk drives that need high-speed throughput and 1.5 Mbps for devices such as joysticks and mice that need much lower bandwidth.

USB also improves the performance of joysticks and other game controllers. A common problem with traditional joystick connections is the tendency to "drift" and lose calibration because of factors such as cable length and CPU overhead. The USB interface, however, prevents drift by effectively eliminating CPU overhead.



| Pin | Name | Description |
|---|---|---|
| 1 | VCC | +5 VDC |
| 2 | D- | Data - |
| 3 | D+ | Data + |
| 4 | GND | Ground |

There are two USB connectors – Type 'A' and 'B'.

- The type 'A' connector has a flat rectangular shape, and plugs into the downstream port receptacles on the USB host or hub.
- The type 'B' connector, roughly square with bevelled corners, plugs into upstream receptacles on a USB device or hub.
- This dual arrangement of connection types prevents a user from accidentally creating an electrical loop when connecting devices.

## IEEE1394 VS.USB

Although 1394 and USB cables may look nearly the same, the widely different data transfer rate capability of 1394 and USB marks the principal distinction between these two technologies:

| | 1394/FireWire/ l.Link | USB 1.0 | USB 2.0 |
|---|---|---|---|
| Maximum Number of Devices | 62 | 127 | 127 |
| Hot-Swappable | Yes | Yes | Yes |
| Maximum Cable Length between Devices | 4.5m | 5m | 5m |
| Data Transfer Rate | 400Mbps | 12Mbps (1.5MB/sec | 480Mbps |
| Macintosh Implementation | Yes | iMac/G4 | iMac/G4 |
| Internal Peripheral Connection | Yes | No | Yes |
| Peripheral Devices | -DV Camcorders<br>-High-Resolution Cameras<br>-HDTV<br>-Set-Top Boxes<br>-Hard Disks<br>-DVD-ROM Drives<br>-Printers<br>-Scanners | -Keyboards<br>-Mice<br>-Monitors<br>-Joysticks<br>-Low-Resolution<br>-Digital Cameras<br>-Low-Speed CD-ROM Drives<br>-Modems | Same as IEEE1394 |

## NETWORKING

### WHAT IS A COMPUTER NETWORK?

A computer network is where 2 or more computers or a computer and a network peripheral (like a printer) are connected together for the purpose of transferring or sharing data.

### WHAT CAN I DO WITH A COMPUTER NETWORK?

- **Share Data** – No more need for transferring data with a Floppy Disk. All or any user can access data on all or any Computer
- **Share a Printer** – If you have 2 or more computers and a printer, you can set up a network that will allow you to share the printer between the computers
- **Share the Internet** – If you had a modem in one of these computers, then via a network and some software, all or any of these computers could access the Internet
- **Play Networkable Games** – If you install network capable games, users can play the same game and compete
- **Communicate with other users** – E-mail is a very powerful communication tool. With the correct hardware and software, you can communicate with networked computers and the Internet

### TYPES OF COMPUTER NETWORK

1. **10Base2 Coax Network**
   - up to 10Mbps data transfer rate
   - Uses RG-58 Coaxial Cable in a bus topology to connect PCs
   - Maximum PC to PC length of 185m
   - Lowest per PC cost.
2. **10BaseT Twisted Pair (UTP) Network**
   - up to 10Mbps data transfer rate
   - Uses Cat.5 twisted pair (UTP) cable in a star topology
   - Maximum PC to central hub or switch distance of 100m
   - Added cost of a hub or switch over 10Base2
3. **100BaseT Twisted Pair (UTP) Network**
   - up to 100Mbps data transfer rate
   - Uses Cat.5 twisted pair (UTP) cable in a star topology
   - Maximum PC to central hub or switch distance of 100m
   - Added cost of a hub or switch over 10Base2 and more expensive (but faster) than 10BaseT

### ABOUT HUBS & SWITCHES

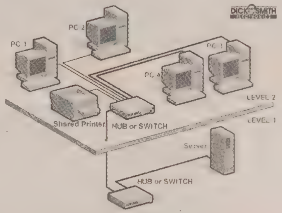
- A HUB or SWITCH forms the heart of most Twisted Pair Networks.
- The entire network operation is dependent on the Hub or Switch working ie: if it fails, the entire network will fail.
- In basic terms, a Hub simply repeats the network signal to all computers or group of computers plugged into each port.
- The total speed of the hub (and hence the entire network speed) reduces as more computers are connected to each port.
- In basic terms, a Switch operates like a Telephone Exchange. It knows the address of each computer or group of computers plugged into each port and directs traffic to the appropriate port.

### ADVANTAGES OF A SWITCH

- A Switch is almost always faster than a Hub.
- The entire network speed is dependent on the total bandwidth of the Switch being used eg: If a 16 port 100Mbps switch had a total bandwidth of 1.6Gbps, then the theoretical maximum data rate of each port would be about 100Mbps – more bandwidth.
- Some Switches support Auto-Negotiation (Nway). This enables the Switch to exchange information about device abilities like highest speed and duplex – faster negotiation.
- Many Switches support both 10Mbps and 100Mbps devices – backward compatibility.
- Because a switch knows where to send the network traffic, there are fewer collisions – data gets there faster.

### WHAT DO I NEED TO SET UP A NETWORK?

1. **Gather Information** – Decide on what type of network you need that best suits your situation and budget. Ask your friends.
2. **Plan what you need** – Unless your PC's have built in networking capabilities, you will probably need to purchase a Network Interface Card (NIC) for each PC. Depending on the network you choose, you may also need some cabling and possibly a hub or switch.
3. **Plan for the future** – Today, you may not need a super fast network. Computer technology advances at such a rapid rate that next year your requirements may change. It pays off in the long run to set up a network that can be easily upgradeable. Eg. Due to the cost of the NICs and hubs, your budget may not allow for a fast 100Mbps 100BaseT network so you decide on a slower 10Mbps Coax network. Next year you add more computers to your network and find that because you're using newer software and perhaps a newer operating system, everything starts to slow down. You would have been better off with a 10Mbps 10BaseT UTP network in the beginning. To get more speed from the UTP network you can simply replace the hubs with switches. Later you can replace the 10Mbps NICs for 10/100Mbps NICs and so on.
4. **Install the network** – Read all the documentation that comes with the products and ask if you're unsure. Get friends, colleagues or parents to help. Unless it's a really complicated network involving over 20 or so PCs, you don't really need a professional installation. These days, it really is quite a straightforward task.



Home or Office Network Example

### ABOUT PRINT SERVERS

- A Print or Printer Server is a device that enables a normal Parallel or Serial printer to connect to a Network.
- They connect to the network just like a Computer would.
- Some support both Coax and Twisted Pair (UTP) networks. Some also support both 10Mbps and 100Mbps data transfer rates. Additionally, some support more than 1 printer.
- One advantage is their low cost compared with a dedicated computer.
- Some Printers have expansion slots inside the printer that accepts a dedicated Printer Server supplied by the printer manufacturer.

### ABOUT INTERNET SERVERS

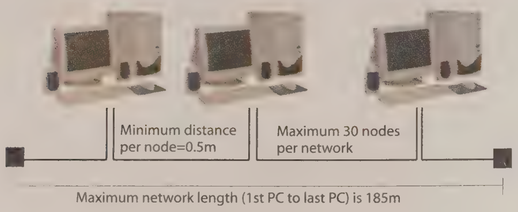
- An Internet Server is a device that enables a group of computers on a network to connect to the Internet.
- It will generally accept or incorporate a serial modem of some type eg: 56K, Dialup, ISDN TNA, ADSL, Etc.
- Some allow you to have more than 1 modem, which can increase Internet access speed. Some incorporate a Fire-Wall. This is a form of security that can prevent unauthorised access to the Internet and the Network.
- Later versions of Windows and programs like WinGate enable you to achieve similar results, sometimes at the expense of network security.

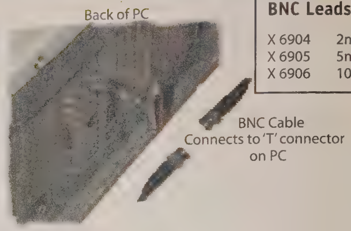
### ADDING MORE COMPUTERS...

- Some Hubs & Switches have a Pass Through, Cascade or Stack feature. This allows you to connect several Hubs or Switches together so more devices can be connected to the network. Certain rules must be followed for stacking Hubs or Switches. You should always consult the user guide or instruction manual of the Hub or Switch you have purchased.

## 10 BASE 2 – 10MBPS COAX NETWORK

- Supports 10Mbps data transfer rates
- Entire network slows down as each new device is added


Minimum distance per node=0.5m
Maximum 30 nodes per network
Maximum network length (1st PC to last PC) is 185m


Back of PC
BNC Cable
Connects to 'T' connector on PC

**BNC Leads**

| | |
|---|---|
| X 6904 | 2m 10Base2 |
| X 6905 | 5m 10Base2 |
| X 6906 | 10m 10Base2 |

The flexibility and low cost of the thin coaxial system continues to make it popular. The computers are connected to each other with 50 Ohm Coax cable(RG58 W2092). Each end of a complete segment must have a 50 Ohm terminator (X 6914 or X 6915). It is essential that exactly two 50 Ohm terminators be installed on a given segment, or the collision detection mechanism will not function correctly.

## 10/100 – UTP OR RJ45 NETWORK

- Supports 10Mbps, 100Mbps, or a combination of 10 and 100Mbps data transfer rates (with a switch)
- If using a Hub, the entire network will slow down as each new device is added
- With a Switch, generally the network will not slow down as new devices are added

**Hubs and Switches**

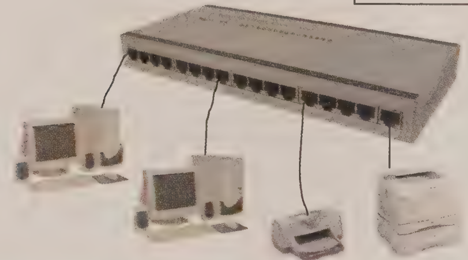
| | |
|---|---|
| XH7907 | DSE Hub 10Mb 5 Port UTP |
| XH7908 | DSE Hub 10Mb 8 Port UTP BNC |
| XH7909 | DSE Hub 10Mb 18 Port UTP BNC |
| XH7910 | DSE Switch 10/100Mbps 5 Port |
| XH7911 | DSE Switch 10/100Mbps 8 Port |
| XH7951 | DSE Switch 10/100Mbps 16 Port |

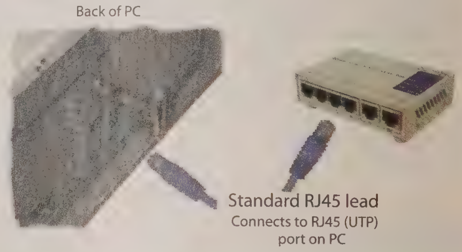
**RJ45 Leads**

| | |
|---|---|
| XH3283 | 1m CAT 5e |
| XH3284 | 3m CAT 5e |
| XH3285 | 5m CAT 5e |
| XH3286 | 10m CAT 5e |
| XH3291 | 1m CAT 6 |
| XH3292 | 3m CAT 6 |
| XH3293 | 5m CAT 6 |
| XH3294 | 10m CAT 6 |

**Network Cards and Adaptors**

| | |
|---|---|
| XH7597 | ISA Card 10Mbps UTP/BNC |
| XH7598 | PCI Card 10Mbps UTP/BNC |
| XH7900 | PCI Card 10/100Mbps UTP |
| XH7917 | PCI Card 10/100Mbps - UTP - WOL |
| XH7912 | CardBus Card 10/100Mbps (notebooks) |
| XH6039 | Compact Flash / PCMCIA 10/100 |
| XH7913 | USB to 10/100 Adaptor |
| XH7914 | PCI 4 port 10/100 Hub |



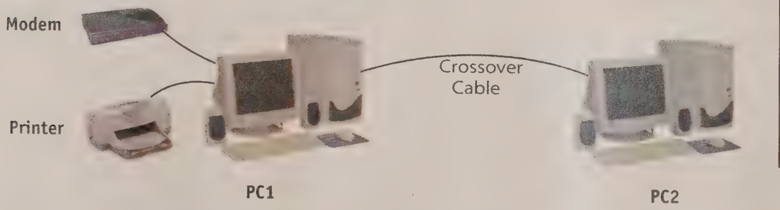

Back of PC
Standard RJ45 lead
Connects to RJ45 (UTP) port on PC

## CONNECTING 2 COMPUTERS

- It is possible to connect two computers together without using a Hub or Switch. This requires a special "Crossover" cable, or two patch leads with a Crossover adaptor.

Each PC will also need a Network Interface Card (NIC)

XH7900 - PCI 10/100 UTP
XH7917 - PCI 10/100 UTP with "Wake on Lan"


Modem
Printer
Crossover Cable
PC1
PC2

**Crossover cables**

| | |
|---|---|
| XH3287 | 1m - CAT 5e |
| XH3288 | 3m - CAT 5e |
| XH3289 | 5m - CAT 5e |
| XH3290 | 10m - CAT 5e |
| XH3295 | 1m - CAT 6 |
| XH3296 | 3m - CAT 6 |
| XH3297 | 5m - CAT 6 |
| XH3298 | 10m - CAT 6 |

**With this setup, both Pc's can - Play network games, Share the printer, share documents and files, access the Internet via the modem...**

## NETWORK & SOLUTIONS WITH INTERNET ACCESS

**Everything you need!**

With DSE network products you will find everything you need to begin sharing printer/s, files and information, accessing the Internet, network and online games and more. Our extensive range includes both wired (LAN) and the latest wireless (WLAN) solutions.

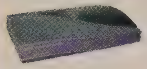
**DSE 10/100Mbps products are Duplex!**

All DSE 10/100Mbps LAN products feature Duplex operation. When installed correctly with our Cat 5e or Cat 6 cables, equivalent networks speeds up to 200Mbps can be achieved – fantastic gaming performance for LAN parities!

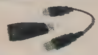
**DSE products comply!**

All DSE LAN products comply with the appropriate IEEE network standards. Additionally, DSE WLAN products comply with IEEE802.11b 11Mbps standards. This means that all DSE branded network products can be used in conjunction with LAN and WLAN products from suppliers.

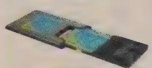
### 10/100Mbps LAN Solutions



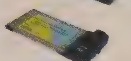
**XH7916**
ADSL Router
- USB or UTP Connect
- 4 Port 10/100Mbps Switch
- Firewall features



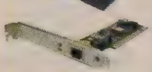
**XH7913**
10/100Mbps USB Adaptor



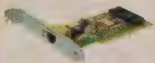
**XH6039**
CompactFlach +
10/100Mbps PCMCIA Card



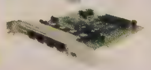
**XH7912**
10/100Mbps CardBus Card



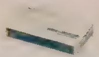
**XH7900**
10/100Mbps PCI Card



**XH7917**
10/100Mbps PCI Card WOL



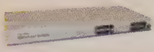
**XH7914**
10/100Mbps Switch Card



**XH7910**
10/100Mbps 5 Port Switch

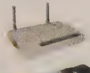
**XH7911**
10/100Mbps 8 Port Switch

**XH7951**
110/100Mbps 16 Port Switch

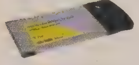


**XH7951**
10/100Mbps Print Erver

### IEEE802.11b WLAN Solutions



**XH7948**
11Mbps Broadband Router
- Includes advanced firewall
- WEP 128-bit Encryption
- IEEE802.11b Compatible
- Suits Cable & ADSL



**XH7918**
11Mbps PCMCIA WLAN Card

**XH7947**
11Mbps USB WLAN Adaptor

## INSTALLING A NETWORK

1. **Decide on a network type to suit your needs.** If you have 2 or 3 computers and wish to play games and perhaps share a printer, then a simple 10Base2 (10Mbps) Coax network will probably suffice. However if you're in a school or office situation, then speed will mean greater productivity and the ability to expand may dictate a 100BaseT (100Mbps) UTP Network.
2. **Prepare a floor plan.** Indicate the location of each computer, printer or network device. Remember to take into consideration things like power and phone points, Hub or Switch locations. If you are using UTP, indicate wall or surface sockets as required.
3. **Prepare a materials list.** Work through your plan, room by room, and tally up what you will need. Use our included checklists here as a guide. Other materials you may need include conduit or garden hose for burying cables; galvanised or stainless steel wire and screw-eyes for supporting suspended cables; shelving for mounting hubs, printers or computers; insulation, double sided or Gaffa tape for mounting, securing or to prevent cables chafing.
4. **Round up the tools you may need.** Consider the following: pliers, cutters, cordless drill, drill bits, saw, sharp knife, screwdriver, tape measure, stud finder, hammer, spade, shovel, chisels, fish-tape (guiding cables through walls), scissors, etc.
5. **Organise the troops.** Many educational institutions are using parent helpers to offset the labour costs of professional installation companies – ideal for trenching, etc. Know who is to do what and by when. Allow plenty of time. Be specific and clearly explain the tasks.
6. **Installing the cables**
   - For a Coax Network, the Maximum segment length is 185m – that's from the first computer to the last. A 10Base2 Hub or Repeater can expand this.
   - For a UTP network, the Maximum length using standard Cat5 cabling from any computer to Hub or Switch is 100m. Again, you can expand this by inserting a Hub or Switch.
   - Never have sharp bends in Coax or Cat5 cable
   - Never squash Coax or Cat5 cable
   - Always label BOTH ENDS of each cable
   - Always protect buried cables – garden hose is OK – be sensible about the depth.
   - Avoid situations where the cable could get damp or wet. Cover it with Conduit or garden hose.
   - Prevent fixed cables from being exposed to direct sunlight if possible – it can break it down in time.
7. **Test each network node.** As you complete the cabling for each computer (or other network device), it pays to test it to make sure you have wired it correctly.
   - **For Coax cabling**, a simple multimeter continuity check between the centre pin of the BNC plug to the metal shroud should indicate an open circuit – make sure the cable is not connected to a hub, PC or terminator or the test won't work.
   - **For UTP Cat5 cabling**, you should ideally use a UTP Cable Tester (X8999). This will indicate any short circuits or crossed pairs.

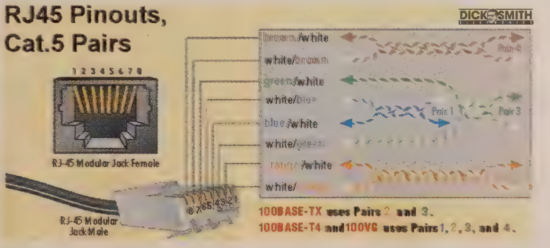
## ADDING MORE COMPUTERS...

CAT5 cable has four twisted pairs of wire for a total of eight individually insulated wires. Each pair is colour coded with one wire having a solid colour (blue, orange, green, or brown) twisted around a second wire with a white background and a stripe of the same colour. The solid colours may have a white stripe in some cables. Cable colours are commonly described using the background colour followed by the colour of the stripe; eg: white-orange is a cable with a white background and an orange stripe.

ORY 5 4PR/24 A

## ABOUT RJ45 PLUGS & SOCKETS

RJ-45 plugs are similar to those you'll see on the end of your telephone cable except they have eight versus four or six contacts on the end of the plug and they are about twice as big. Make sure they are rated for CAT 5 wiring. (RJ means "Registered Jack"). Also, there are RJ-45 plugs designed for both solid core wire and stranded wire. (T568B standard shown).



# NETWORKING

*This is not a definitive guide. Where possible, we have indicated the appropriate RFC document that should be referred to for furthe information. You can find these RFC documents on the Internet at http://www.ietf.org*

**AAL2** - Protocol for time-dependent Variable Bit Rate of connection-oriented traffic (i.e. packetized video and audio)

**AAL5** - Protocol for the transport of Lightweight Variable Bit Rate (VBR) traffic and signaling messages. Also used to support Frame Relay services.

**ADSL** - *Asymmetric Digital Subscriber Line.* Technology that allows more data to be sent over existing copper telephone lines. Supports data rates up to 8 Mbps when receiving data (known as the *downstream* rate) and from 16 to 640 Kbps when sending data (known as the *upstream* rate).

**ATM** - *Asynchronous Transfer Mode.* A broadband switching and multiplexing, connection-oriented, high-performance integrated technology for supporting B-ISDN services (i.e. multimedia). Information is transmitted at very high rates (hundreds of Mbps) in fixed-size format packets called cells.

**CBR** - *Constant (or Continuous) Bit Rate.* One of the five ATM classes of service, which supports the transmission of a continuous bit-stream of information where traffic, such as voice and video, needs to meet certain QoS requirements (see also QoS Classes).

**CHAP** - *Challenge Handshake Authentication Protocol* – RFC 1994 - a more secure procedure for connecting to a system than the Password Authentication Procedure (PAP)

**DHCP** - *Dynamic Host Configuration Protocol* – RFC 1541 - Protocol for assigning dynamic IP addresses to devices on a network. With dynamic addressing, a device can have a different IP address every time it connects to the network. In some systems, the device's IP address can even change while it is still connected. DHCP also supports a mix of static and dynamic IP addresses.

**DNS** - *Domain Name System* (or *Service*) – RFC 1035 - An Internet service that translates domain names into IP addresses.

**DSLAM** - *Digital Subscriber Line Access Multiplexer* – The mechanism at a phone company's central location that links many customer DSL connections to a single high-speed ATM line.

**FTP** - *File Transfer Protocol* - A protocol used for transferring files between different machines across a network.

**Host** - A computer or other device on a TCP/IP network.

**HTTP** - *HyperText Transfer Protocol* - The underlying protocol used by the World Wide Web. HTTP defines how messages are formatted and transmitted, and what actions Web servers and browsers should take in response to various commands

**ICMP** - *Internet Control Message Protocol* - RFC 792 - An extension to IP that supports packets containing error, control, and informational messages.

**IGMP** - *Internet Group Management Protocol* - RFC 1112 - The standard for IP multicasting in the Internet. Used to establish host memberships in particular multicast groups on a single network.

**InterNIC** - The organization responsible for administration of IP addresses on the Internet

**IP** - *Internet Protocol* - networking protocol for providing a connectionless (datagram) service to the higher transport protocol. It is responsible for discovering and maintaining topology information and for routing packets across homogeneous or heterogeneous networks. Combined with TCP, it is commonly known as the TCP/IP platform.

**IP Address** - A unique 32-bit address for a host on a TCP/IP network or internetwork.

**IPX** - A protocol similar to IP that was developed by Novell.

**IPCP** - *Internet Protocol Control Protocol* – RFC 1332 - Is the protocol responsible for configuring, enabling, and disabling the IP protocol modules on both ends of the point-to-point link.

**LCP** – *Link Control Protocol* – RFC 1661 - Protocol used to establish, configure, and test the data-link connection for a PPP link.

**MAC Table** - *Media Access Control Table* - the MAC address is your computer's unique hardware number. When you're connected to the Internet from your computer (or host as the Internet protocol thinks of it), a correspondence table relates your IP address to your computer's physical (MAC) address on the LAN.

**MIME** - *Multipurpose Internet Mail Extensions* - RFC 1521, 1522 – Protocol for formatting non-ASCII messages so that they can be sent over the Internet. Many e-mail clients now support MIME, which enables them to send and receive graphics, audio, and video files via the Internet mail system.

**Multicast** - Communication between a single sender and multiple receivers on a network. Typical uses include the updating of mobile personnel from a home office and the periodic issuance of online newsletters.

**NAT** – *Network Address Translator* – RFC 1631 - An Internet standard that enables a local-area network (LAN) to use one set of IP addresses for internal traffic and a second set of addresses for external traffic.

**NetBIOS** - *Network Basic Input/Output System* - a program that allows applications on different computers to communicate within a local area network (LAN)

**NetBEUI** - *NetBIOS Extended User Interface* – An extended version of NetBIOS that formalizes the frame format (or arrangement of information in a data transmission) that was not specified as part of NetBIOS

**NWay** - A telecommunications protocol used with Ethernet networking devices (such a router and switch) to automatically negotiate the highest possible common transmission speed between two devices.

**PAP** - *Password Authentication Protocol* - The most basic form of authentication, in which a user's name and password are transmitted over a network and compared to a table o name-password pairs.

**Packet** - A unit of data passed over a TCP/IP network or wide area network.

**POP3** - *Post Office Protocol 3* – RFC 1939 - protocol for receiving e-mail.

**PPP** - *Point to Point Protocol* - a protocol for communication between two computers using a serial interface, typically a personal computer connected by phone line to a server.

**PPPoE** - *Point-to-Point Protocol over Ethernet.* - A specification for connecting the users or an Ethernet to the Internet through a common broadband medium such as a single ADSL line.

**PPPoATM** – *Point-to-Point Protocol over Asynchronous Transfer Mode.* - Protocol that enables TCP/IP traffic to be carried over an ATM network all the way down to a computer without being translated.

**PPTP** - *Point-to-Point Tunneling Protocol* - RFC 2516 - technology for creating Virtual Private Networks (VPNs). A VPN is a private network of computers that uses the public Internet to connect some nodes. Because the Internet is essentially an open network, the Point-to-Point Tunneling Protocol (PPTP) is used to ensure that messages transmitted from one VPN node to another are secure. With PPTP, users can dial in to their corporate network via the Internet.

**RFC** - *Request for Comment* - A document used to define standards on the Internet.

**RIP & RIPv2** - *Routing Information Protocol* – RFC 1058, 1723 - A widely-used protocol for managing router information within a self-contained network such as a corporate loca area network (LAN) or an interconnected group of such LANs

**Qos** - *Quality of Service* - refers to the set of ATM performance parameters that characterize the traffic over a given virtual connection.

**QoS Classes** - *Quality of Service Classes. The* five service classes as defined by the ATM Forum are: *Class 0* - best effort service; *Class 1* - circuit emulation, Constant Bit Rate (CBR) for video and for VPN; *Class 2* – Variable Bit Rate (VBR) for audio and video; *Class 3* - connection-oriented data transfer; *Class 4* - connectionless data transfer

**Router** - A device that passes network traffic between different IP networks.

**SMTP** - *Simple Mail Transfer Protocol* – RFC 821 - A TCP/IP protocol used in sending and receiving e-mail.

**SNMP** – Simple Network Management Protocol – RFC 1089, 1298, 1418, 1419 - The protocol governing network management and the monitoring of network devices and their functions. It is not necessarily limited to TCP/IP networks.

**Subnet or Subnetwork** - A smaller network created by dividing a larger network into 2 or more sections.

**Subnet Mask** - A 32-bit number used to distinguish the network and host portions of an IP address.

**TCP/IP** - *Transmission Control Protocol/Internet Protocol* - The suite of communications protocols used to connect hosts on the Internet.

**TELNET** - A terminal emulation program for TCP/IP networks such as the Internet. The Telnet program runs on your computer and connects your PC to a server on the network. You can then enter commands through the Telnet program and they will be executed as if you were entering them directly on the server console.

**Tunneling** - A technology that enables one network to send its data via another network's connections. Tunneling works by encapsulating a network protocol within packets carried by the second network. For example, Microsoft's PPTP technology enables organizations to use the Internet to transmit data across a virtual private network (VPN). It does this by embedding its own network protocol within the TCP/IP packets carried by the Internet.

**UDP** - *User Datagram Protocol* – RFC 768 - a connectionless protocol that, like TCP, runs on top of IP networks.

**VLAN** - *virtual LAN* - A network of computers that behave as if they are connected to the same wire even though they may actually be physically located on different segments of a LAN. VLANs are configured through software rather than hardware, which makes them extremely flexible. One of the biggest advantages of VLANs is that when a computer is physically moved to another location, it can stay on the same VLAN without any hardware reconfiguration.

**VPN** – *Virtual Private Network* – a network that is constructed by using public wires to connect nodes.

**WAN** – *Wide Area Network* - A large network that is a collection of smaller networks separated by routers. The Internet is an example of a very large WAN.

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*Thank you –*

The Staff of Dick Smith Electronics

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We are happy to sell to most foreign countries. Simply address your order to Dick Smith Direct Link Service or phone ISD 649 414 2800 or fax 649 414 2886. On more expensive items, the savings in GST could mean the cost of freight is recovered. Remember, however, that you may have to pay customs and importing charges and duties at your end (if applicable).
We cannot supply full customs documentation, but all parcels include the required customs docket with invoice details.

Freight costs both ways will be the responsibility of the customer, for any item that is returned under warranty from overseas.

We would also remind overseas customers that our guarantees are 'ex-store'. The Consumer Guarantees Act 1993 does not apply to any overseas supply of goods. Otherwise our contract is governed by the Laws of New Zealand. If, for any reason, goods are returned to us from overseas (eg for service, etc) it is absolutely essential that Customs documents are included. If they are not, it can be a very costly process to obtain Customs Clearance and this charge must be paid by the customer. Failure to include Customs documents can also result in long delays.

We accept major credit cards as payment for international mail orders under $200. Simply fill in the credit card details on the order form. Orders over $200 must be accompanied by a bank draft or similar.

### DAMAGED GOODS

If goods are missing, please notify Dick Smith Electronics immediately. If goods are received damaged, the carrier must be notified immediately, and a claim lodged with Dick Smith Electronics.

### BACK ORDERS

All goods in stock are despatched promptly. Goods out of stock are Back Ordered and sent later at our expense unless we advise otherwise. Back order prices are firm for 60 days from date of order. All back orders are despatched immediately we receive the goods from our suppliers. When we send a copy of your order back to you, the delay times will be estimated, but because this information is given to us by our suppliers we cannot guarantee their accuracy. We will advise you of any further delays. Please refer to automatic back orders on Page 5.

### PHONE ENQUIRIES ON ORDERS

You are welcome to enquire about your order by phoning our enquiry line (09) 414 2877 or (09) 414 2835. Because our system is computerised, we can normally give you the information you want very quickly – at most within a couple of minutes.

Before phoning, please have available your customer number (from your last invoice or from any correspondence), name and address on order, and the information required.

### WHOLESALE DIVISION

Our Wholesale Division can offer extremely competitive prices on large quantities and bulk buys. If you've got a project in mind we'll gladly quote you on large quantity purchases or you can write to the manager of our Wholesale Division at the address below:

Wholesale Division
Dick Smith Electronics
Private Bag 102-903
North Shore Mail Centre
AUCKLAND
Phone (09) 414 2800

*That's where you go!*

www.dse.co.nz

COMMUNICATIONS

COMPUTERS

ENTERTAINMENT

ELECTRONICS

**DICK SMITH**
**ELECTRONICS**

DSE (NZ) Limited, Administration & Distribution Centre
221 Bush Road, Albany,
Private Bag 102-903, North Shore Mail Centre,
Auckland, New Zealand, Ph: (09) 414 2800 Fax: (09) 414 2801.

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